THE BUILDER
A RECORD OF ARCHITECTURE & CONSTRUCTION

VOLUME CXIX. No. 4059. Seventy-eighth Year. | FRIDAY, NOVEMBER 19, 1920. REGISTERED AT THE GENERAL POST OFFICE AS A NEWSPAPER | PRICE NINEPENCE. By Post 11d. (This Week)

"I have seen several different forms of Mr. Boyle's 'Air-Pump' Ventilator in actual operation, and have much pleasure in testifying to their efficiency."—LORD KELVIN.

Boyle's

LATEST "PATENT" **AIR-PUMP" VENTILATOR.**

Has DOUBLE the EXTRACTING POWER of Earlier Forms

Awarded the £50 Prize with Grand Diploma (only prize offered), at the International Ventilator Competition, London. Highest Award, International Ventilator Competition, Paris, Two Gold Medals.

"Mr. Boyle's complete success in securing the required continuous upward impulse is testified to by high authorities."—GOVERNMENT REPORT (Blue Book).

ROBERT BOYLE & SON,
Ventilating Engineers,
64, HOLBORN VIADUCT, LONDON.

"Messrs. Robert Boyle and Son, as the founders of the profession of Ventilation Engineering, have raised the subject to the dignity of a science."—REPORT ON THE VENTILATION OF THE LONDON CUSTOM HOUSE.

HEATING

ROSSER & RUSSELL, Ltd.
(MAYFAIR 5210)
37 DUKE STREET, OXFORD STREET,
LONDON, W.1

HYDRAULIC LIFTS. NO FIRE RISKS.
LONDON HYDRAULIC POWER CO.
HATFIELD STREET, S.E.1. HOP. 4540.

THE LIFT & HOIST Co.
Sole Makers of "Premier" Rolling Shutters.
108-114, Prince Street, DEPTFORD, S.E

WAYGOOD-OTIS LIFTS
Offices:—54-5, Fetter-lane, E.C. (T.N.: Holborn 2091, T.A.: "Waygood, Fleet, London"); 68-9, Lionel-street, Birmingham (T.N.: Cen. 40 Birmingham, T.A.: "Waygood, Birmingham"). Works: Falmouth-road, London, S.E.1.

LIFTS for domestic purposes — hand power, REVOLVING SHUTTERS, &c
Saml. HASKINS & Bros., Ltd.,
20–34, Old Street, London, E.C.1.

TITAN LIFTS.
THE TITAN LIFT CO., Ltd.,
20, HIGH HOLBORN, W.C. Telephone—4687 HOLBORN

THE **EXPRESS LIFT CO., LD.**
GREYCOAT STREET WORKS.
WESTMINSTER, S.W.1
ALL TYPES.
Phone: Victoria 6115 (3 lines).

EWART'S
"EMPEROR" SMOKE CURE
Cures Smoky Chimneys.
Catalogue on application.
EWART & SON, Ltd., Euston Rd., London.

MODELS OF WORKS BUILDINGS ESTATES, etc.
Executed by JOHN B. THORP,
98, Gray's Inn Road (next to Holborn Hall),
Phone Holborn, 1011 LONDON, W.C. 1

STEVEN'S (A.P.S.) **LIFTS**
A. & P. STEVEN (PROVANSIDE WORKS.) GLASGOW.
London Office: 10, Charles Street, Blackfriars Road, S.E.

ELECTRIC LIFTS
Smith, Major, & Stevens, Ltd. LONDON & NORTHAMPTON.
(Late Archibald Smith & Stevens).

ASPHALTE WORK
RAGUSA ASPHALTE Co., LD.
TREDEGAR ROAD, BOW, E.3

MILD STEEL ROUNDS FOR FERRO-CONCRETE
ALL SIZES.
~~BARS~~ ~~BARS~~ ~~BARS~~
PROMPT DELIVERIES FROM STOCK.
HELICAL BAR CO., 1, VICTORIA STREET, WESTMINSTER, S.W.1 Victoria 1940 & 1941.

TREDEGARS LIMITED
Electrical Engineers.
COMPLETE INSTALLATIONS for LIGHTING, HEATING, TELEPHONES and BELLS.
Maintenance Work a Speciality.
SHOWROOMS & OFFICES:
5, 7 & 9, BROOK STREET, W. 1.
Telephone: MAYFAIR 1032-33. Works: 9a, DIANA PLACE, N.W.1.

Analysis of Advertisements.

Artificial Stone—
Brookes Ltd.
Concrete Units Co.
Patent Impervious Stone

Asbestos Tiles & Sheets—
Bell's United Asbestos Co.
British Everite & Asbestilite Works, Ltd.
British Fibrocement Works.
British Roofing Co., Ltd.
British Uralite Co. (1908) Ltd.
Machin & Kingsley, Ltd
Martinet Slate & Sheet Co., Ltd
Turner Bros. Asbestos Co., Ltd

Asphalte—
Bradshaw's Asphalte Co. Ltd
Bradshaw, J. H.
Engert & Rolfe Ltd
Faldo's
Hobman, A. C. W. & Co. Ltd.
Limmer & Trinidad Lake Co.
Ragusa Asphalte Co. Ltd.
Val de Travers Asphalte Co.

Bells, &c.—
Carr, Chas. Ltd.
Gillett & Johnston

Bitumen Sheeting—
Callender, Geo. M. & Co. Ltd
Engert & Rolfe, Ltd.
McNeill, F. & Co. Ltd.
Vulcanite Ltd.
Walles Dove Bitumastic, Ltd

Blind Cords—
Anchor Brand.
Woods, Sons & Co.

Blinds (Window, &c.)—
Bryden, John, & Sons
Francis, S. W. & Co. Ltd
Haskins, S. & Bros.
Meighan, James & Son
Williams G. A. & Son

Boilers—
Danks, H. & T. (Netherton).
Hartley & Sugden, Ltd.
Jenkins, Robert, & Co., Ltd.
Kinnell Chas. P. & Co. Ltd
Lumbys, Ltd.

Bricks—
Builders' Material Association
Burley, C. Ltd.
Dennis, Henry
Lawford & Sons, Ltd.
Leeds Fireclay Co. Ltd
Moler Fireproof Brick Co.
Ravenhead Pipe & Brick Co. Ltd
Rufford & Co.
Smeed, Dean & Co. Ltd.
Ward, R. G. & Co.
Young & Son

Builders' Ironmongery—
Nicholls & Clarke
O'Brien, Thomas & Co.
Young & Marten Ltd

Building Contractors—
Cheesman, Ltd.
Higgs & Hill, Ltd.
Jones, Walter & Sons
Somerville, D. G. & Co. Ltd.
Williams Howell J. Ltd

Cartage Contractors—
Bissell, J. A.
Harler
Mears, Joseph

Castings—
Bayliss, Jones & Bayliss, Ltd.
Haywards, Ltd.
Macfarlane, W. & Co.
Nicholls & Clarke, Ltd.
Young & Marten, Ltd.

Cement, Lime, Plaster—
Builders' Material Association
Burley, C. Ltd.
Cement Marketing Co
Greaves, Bull & Lakin, Ltd
Kaye & Co. Ltd.
Lawford & Sons, Ltd
Oxford Portland Cement Co.
Smeed, Dean & Co. Ltd.
Super Cement, Ltd.
Young & Son

Cement Waterproofing—
Barean
Ironite Co., Ltd.
Pudlo
Pruftt

Clocks (Church & Tower)—
Gillett & Johnston

Chimney Shafts—
Chimneys Limited.
Danks, H. & T. (Netherton) Ltd
Furse, W. J.

Chimney Cowls, &c.—
Ewart & Son, Ltd.
Farmiloe, George & Sons, Ltd
Nicholls & Clarke, Ltd.
Young & Marten Ltd

Concrete Houses—
Bremners.
Concrete Units Co.
Roberts A. Co. Ltd.

Concrete Machinery—
Australia Pat. Concrete Block
Builders and Contractors Plant, Ltd.
Chalmers-Edins Co.
Ingersoll-Rand Co.
Liner Concrete Machinery Co.
Martin-Harvey Co
Millars' Timber & Trading Co
Parker, Winder & Achurch Ltd.
Price & Co., Frank G.
Stothert & Pitt
Vickers, Ltd.
Whitaker, R. G., Ltd.
Winget, Limited

Coatostone—
Coatostone Decoration Co

Concrete Piling—
Simplex Concrete Piles, Ltd.
Somerville D. G. & Co., Ltd.

Concrete Specialities—
British Construction Co.
Building Products, Ltd.
Concrete Blocks, Ltd.
Concrete Units Co.
Helical Bar & Engineering Co

Concrete (Reinforced)—
British Reinforced Concrete
Concrete Units Co.
Expanded Metal Co., Ltd.
Hobbs & Co.
Improved Concrete Construction Co. Ltd.
Indented Bar & C. Eng. Co.
Johnson's Reinforced Concrete
Jones, Walter & Sons
Lind, Peter & Co.
Patent Impervious Stone Co.
Self-Sentering Ex. Metal
Somerville, D. G. & Co., Ltd.
Stewart, J. & W.
Trussed Concrete Steel Co., Ltd
Walker-Weston Co. Ltd.

Contractors' Plant—
Anderson, Thomas & Co., Ltd
Boyer, Henry
Builders and Contractors Plant, Ltd.
Builders' Material Association
Building Products, Ltd.
Cayless Bros. (Batterses)
Lewis & Lewis Ltd.
Palmer's Travelling Cradle
Parker, F. & Co.
Rom River Co., Ltd.
Stephen & Carter Ltd

Damp Proof Courses—
Briggs, W., & Sons Ltd.
Building Products, Ltd.
Callender, Geo. M. & Co. Ltd.
Engert & Rolfe, Ltd.
Hobman, A. C. W. & Co. Ltd.
Ironite Co. Ltd. (The)
Kerner-Greenwood & Co. (Pudlo
McNeill F. & Co Ltd.
New Tylerybont Stone and Asphalte Co., Ltd.
Permanite, Ltd.
Ragusa Asphalte Co. Ltd.
Rowse & Co.
Triton (Liverpool) Ltd.
Vulcanite Ltd

Decorators' Dust Sheets—
Moore, W. & Co.

Demolition—
Boyer, Henry
Cowell, A. E. & Co.
Greenham, Henry J.

Doors (Iron, Steel, &c.)—
Anderson, Thomas & Co., Ld
Brown, H., Ltd.
Bryce, White & Co.
Dennison, Kett, & Co. Ltd
Gibson, Arthur L.
Haywards, Ltd.
Hobbs, Hart, & Co. Ltd.
Lift and Hoist Co
Mather & Platt, Ltd.
Stavers & Robinson.
Van Kannel Revolving Door Co
Wadeson & Co.

Door Hangers & Rollers—
Bousfield's Ironworks.
Nicholls & Clarke, Ltd.
O'Brien, Thomas, & Co.
Parker, Winder & Achurch
Young & Marten Ltd

Door Springs and Hinges—
Nicholls & Clarke, Ltd.
Young & Marten Ltd

Drawing Instruments—
Baker C.
Clarkson's

Electric Lamps—
Masda, Osram.

Electric Lighting & Fittings—
Dalarn Engineering Co.
General Electric Co., Ltd.
Harrison & Co.
Malcolm & Allan, Ltd
Mather & Platt, Ltd
Sims & Sims
Tilley Bros.
Tredegars Ltd
Troy & Co. Ltd.
Underwood (Manchester), Ltd.

Engines, Mortar Mills—
Lewis & Lewis, Ltd.

Facias, &c.—
Francis, S. W. & Co. Ltd.
Haskins, S., & Bros., Ltd.

Felt—
Anderson, D. & Son, Ltd
Engert & Rolfe, Ltd
Gibson, Arthur L.
McNeill F. & Co. Ltd.
Triton (Liverpool) Ltd.

Fencing (Wood, &c.)—
Ford, H. J.
"Invicta" Fencing Co.
Neville Hine & Co.
Rowland Bros.

Fibre for Mixing—
Woods, Sons and Co

Fire Escapes, Staircases—
Clark, Hunt, & Co. Ltd.
Davis, H. & C. & Co. Ltd.
Haywards, Ltd.
Lift and Hoist Co

Fireproof Flooring, &c.—
Bell's United Asbestos Co.
British Reinforced Concrete
Dawnay, A. D. & Sons, Ltd.
Expanded Metal Co. Ltd.
Haywards, Ltd.
Ironite Co. Ltd.
King, J. A. & Co.
Kleine Pat. Flooring Co. Ltd.
Moler Fireproof Brick & Partition Co., Ltd.
Siegwart Fireproof Floor Co
Somerville D. G. & Co. Ltd.
Thermos Flooring Co. Ltd

Flint Paper—
Oakey, J. & Sons, Ltd.

Folding Partitions—
Educational Supply Assoc., Ld.
Lift and Hoist Co.
Thornborough & Co. Ltd.

Garden Hose—
Wilcox, W. H. & Co. Ltd.
Woods, Sons & Co.

Gates (Collapsible)—
Bostwick Gate Co., Ltd.
Dennison, Kett, & Co. Ltd.
Haywards, Ltd.
Lift and Hoist Co
Thornborough & Co. Ltd.

Gates, Railings (Iron), &c.—
Bayliss, Jones & Bayliss, Ltd.
Haywards, Ltd.
Nicholls & Clarke Ltd.
Young & Marten, Ltd.

Glue (Liquid)—
Croid
Gluton, Ltd.
Pactol

Glue (Powder)—
Lactocol

Glass (Plate & Window)—
British Luxfer Prism Synd.
Clark J. & Son, Ltd.
Eaton, Parr & Gibson, Ltd.
Farmiloe, George & Sons, Ltd.
Haywards, Ltd.
King, J. A. & Co
Newton, J. M. & Sons, Ltd.
Nicholls & Clarke.
Pilkington Bros., Ltd.
Van Sint Jan, Sylvain.
Young & Marten, Ltd.

Glass Paper—
Oakey J. & Sons Ltd.

Glass (Stained, Painted)—
British Luxfer Synd., Ltd.
City Glass Co.
Clark, J. & Son
Farmiloe, George & Sons, Ltd.
Gibbs, W., & Sons, Ltd.
Haywards, Ltd.
King, J. A. & Co.
Nicholls & Clarke
Young & Marten Ltd.

Glazing—
Braby, F. & Co. Ltd.
British Luxfer Synd., Ltd.
Farmiloe, George & Sons, Ltd.
Freeman's
Grover & Co. Ltd.
Haywards, Ltd.
Helliwell & Co. Ltd.
King, J. A. & Co.
"Metacon" Patent Glazing.
Nicholls & Clarke, Ltd.
Partridge, T. & Co.
Young & Marten Ltd

Gutter Brackets—
Parker Winder & Achurch

Heating and Lighting—
Central London Electrical
Clark, Hunt, & Co., Ltd.
Dunham Co., Ltd., C. A.
Ewart & Son, Ltd.
Hartley & Sugden Ltd.
Haywards, Ltd
King & Co., Ltd.
Kinnell Chas. P. & Co., Ltd.
Martin, W. C. & Co.
Messenger & Co.
Murray, S. D. & Co., Ltd.
Musgrave & Co. Ltd.
Nicholls & Clarke, Ltd.
Rosser & Russell Ltd
Self Engineering Co., Ltd.
Spensers, Ltd.
Walker, H. & Son, Ltd.
Young & Marten Ltd

Hot Water Supply—
Clark, Hunt & Co. Ltd.
Dargue, Griffiths & Co., Ltd.
Ewart & Son, Ltd,
Fildes, Thos.
Jenkins, Robert & Co. Ltd.
Keith, James, & Blackman
Martin Engineering Co., Ltd.
Murray, S. D. & Co., Ltd.
Petersen, Thos.
Rosser & Russell, Ltd.

Hydraulic Power—
London Hydraulic Power Co.

Insurance—
Cornhill Insce. Co., Ltd.
London and Lancashire Fire,
Timber Trades Mutual Accident

Ironite—
Ironite Co. Ltd.

"Jacks"—
Herbert Morris, Ltd.

Joinery, Mouldings, &c.—
Aston Grant & Co., Ltd.
Austins (East Ham & Hford),
Baltic Saw Mills Co., Ltd.
Boulton & Paul, Ltd.
Bowman, M.
Cabinet Co. (S. L.), Ltd.
Central Aircraft Co.
Falcon Works, Ltd.
Foulds Arthur, Ltd.
Gluton Ltd.
Gosport Cabinet & Joinery Works
Henry, George & Co.
Heal & Son
Holt, J. & Son.
Jennings, C. & Co.
Middlesex Joinery Works Ltd.
Newman, John, Ltd.
Orlivie & Co.
Orfeur C. E. Ltd.
Peacock, Chas. & Co.
Roach, H.
Slade, Geo. & Co., Ltd.
Thornborough & Co. Ltd.
Tucker, W. Duncan, & Sons
Wallis John & Co.
West Heath Joinery Works.
West London Timber & Moulding Co. Ltd.

Jointless Flooring—
Bell's United Asbestos Co.
Brentford Construction Co.,
British Poloment Co. Ltd
Durato
Ebner, J. F.
King, J. A. & Co.
Thermos Flooring Co. Ltd.
Walker, Chas. & Co.
Wilfley Co. Ltd.

Ladders—
Acme Patent Ladder Co.
Cayless Brothers (Batterses).
Drew, Clark & Co.
Lawford & Sons, Ltd.
Parker & Co
Stephens & Carter
Stephens & Stephens
Trollope & Colls, Ltd.

Laundry Appliances—
Bradford, T. & Co. Ltd

Lead, Oil, Colours, Size, &c—
Builders' Material Association
Farmiloe, G. & Sons, Ltd.
Farmiloe, T. & W. Ltd.
Girdler, J. & Co.
Nicholls & Clarke
Titon (Liverpool) Ltd.
Young & Marten Ltd.

Letters, &c.—
Francis S. W. & Co Ltd.

Lifts, Hoists, Cranes, &c.—
A. & A. Electrical Co. Ltd.
Bryden John, & Sons
Dennison, Kett & Co., Ltd
Express Lift Co., Ltd.
Haskins, S. & Bros. Ltd.
Hoisting Appliance Co.
Lewis & Lewis, Ltd.
Lift and Hoist Co.
Smith, Major & Steven, Ltd.
Steven, A. & F.
Titan Lift Co. Ltd.
Vaughan Crane Co., Ltd.
Waygood-Otis Ltd.

Lightning Conductors—
Aldington, G.
Furse W. J

Locks, Latches, &c.
Hobbs, Hart & Co. Ltd
Nicholls & Clarke, Ltd
Young & Marten Ltd.

Machinery—
Johnson, C. H. & Sons, Ltd

Marble—
Bomert, Teves and Blankley
Ebner J. F.
Kelly & Co
Moore, M. & R.
Walker, Chas. & Co.

Metal Casements—
British Luxfer Syndicate, Ltd.
Etherton & Williams,
Farmiloe, George & Sons Ltd
Haywards, Ltd.
Nicholls & Clarke Ltd
Standard Metal Windows Co.
Young & Marten, Ltd.

Metal Work—
Marshall, R. E. & C., Ltd.
Shrivell, Wm., Ltd.
Tilley Bros.
Thornborough & Co., Ltd.

Model Makers—
Partridge, L. H.
Thorp, J. B.

Mosaic Work—
Brookes, Ltd.
Ebner, J. F.
Maw & Co. Ltd.
Moore, M. & R.

Motor Vehicles, Transport.
Bunford & Co., Ltd.
Commercial Cars Ltd.
Keith & Boyle (Ldn.), Ltd.
London & Midland Motors, Ld
Mann's Pat. Steam Cart and Wagon Co.
North Western Motors
Palladium Autocars, Ltd.
Slough Trading Co., Ltd.
Thornycroft & Co.
Tilling, Ltd.
Tuke & Bell, Ltd.

Paints, Stains, Varnish—
Aspinalls, Ltd.
Berger, Lewis, & Sons, Ltd.
Builders' Material Association
Carson, W. & Sons
Clark, Robt. Ingham & Co. Ld
Cuirass Products, Ltd.
Dixon's White, Ltd.
Farmiloe, George & Sons, Ltd.
Farmiloe, T. & W. Ltd.
Gay R. & Co., Ltd
Gelatinous White Co.
Hall, John & Sons, Ltd.
Nicholls & Clarke, Ltd.
Nobles & Hoare, Ltd.
Prices' Company, Ltd.
Rose, Sir A. W. & Co., Ltd.
Silicate Paint Co.
Stephens, H. C.
Titon (Liverpool) Ltd.
Torbay & Dart Paint Co. Ltd.
Young & Marten Ltd.

Parquet Flooring—
Artistic Flooring and Decorating Co
Dauman & Co.
Ebner, J. F.
Turpin's
Walker, Chas. & Co.

Partitions, Slabs, &c.—
British Lignolite Co.
British Uralite Co. (1908)
Builders' Material Association
Concrete Blocks, Ltd.
Concrete Units Co.
Educational Supply Co. Ltd.
Expanded Metal Co. Ltd.
Jones, Fredk. & Co. Ltd.
King, J. A. & Co.
Lawford & Sons, Ltd.
Muribloc (Partition Slabs), Ltd.
Thames Mills (Calne).
Wright, J. & Co.

Pavement, &c., Lights—
British Luxfer Prism Synd.,
Haywards, Ltd.
King, J. A. & Co

Picture Cords—
Anchor Brand
Woods, Sons & Co

Pipe Yarns—
Woods, Sons & Co.

Pumps, Pumping Engines
Barclay, James
Boulton & Paul, Ltd.
Braby, F. & Co. Ltd
Phœnix Engineering Co Ltd.
Pulsometer Engineering Co
Willcox W. H. & Co Ltd.

Rawlplugs—
Rawlplug Co.

Rooflights—
Braby, F. & Co. Ltd.
British Luxfer Prism Synd.
Rendle, W. Edgcumbe & Co., Ltd.

Roofing Compounds—
Baxendale & Co., Ltd., "Texo."
Callender Geo. M. & Co., Ltd.
Cuirass Products
"Farotex."
Titon (Liverpool), Ltd
Reparo, Ltd.

Roofing (Felt)—
British Roofing Co. Ltd.
Certain-teed Products
Cuirass Products, Ltd.
McNeill F. & Co. Ltd.
New Tylerybont Stone and Asphalte Co., Ltd.
Vulcanite Ltd

Roofings (various brands
"Alligator" (British Roofing Co. Ltd.)
Certain-teed Products
"Challenge" (Briggs & Sons)
"Lion" (F. McNeill & Co.)
National Roofing, Ltd.
"Rok" (D. Anderson & Son, Ld
"Ruberoid" (Ruberoid Co. Ld)
"Titon," Titon Ltd.
"Vulcanite" (Vulcanite Ltd).

Roofs (Zinc and Copper—
Braby, F. & Co. Ltd.
Ewart & Son, Ltd.

Ropes (Fall and Scaffold)—
Brown, J. H. & Co.
Bullivant & Co., Ltd.
Leyton Rope Works
Woods, Sons & Co.

Safes—
Hobbs, Hart, & Co. Ltd.
Tann John Ltd.

Sand, Gravel, &c.
Bennett, John
Boyer Henry
Concrete Units Co.
Hoddesdon Sand Pits, Ltd.
Lawford & Sons, Ltd.
Stanwell Silica Co., Ltd.
Stokes, J. W. G.

Sanitary Appliances and Ware—
Andrew & Nanson
Builders' Material Association
Burn Bros.
Doulton & Co. Ltd.
Emanuel, A. & Sons, Ltd.
Farmiloe, George & Sons Ltd
Haywards, Ltd
Leeds Fireclay Co. Ltd
Macfarlane, W. & Co.
Nicholls & Clarke
Rufford & Co.
Sessions & Sons, Ltd.
Thames Bank Iron Co., Ltd.
Young & Marten Ltd

Sash Lines, Cords, &c.—
Anchor Brand
Brown, J. H.
Woods, Sons & Co.

Scaffolding—
Hobbs, W. J.
Humphries Patent Bracket
Lawford & Sons, Ltd
Palmer's Travelling Cradle
Parker, F. & Co.
Patent Rapid Scaffold Tie Co.
Spencer's Travelling Scaffold.
Stephens & Carter
Tubular Scaffolding Co.

Scrap Metals—
Buyers of Scrap Metals Ltd.

Settings for Boilers, &c.
Aldington, G.
Danks, H. & T. (Netherton) Ld.

Sculptors—
Powis & Graham

Sewage Purification—
Tuke & Bell Ltd.

Shop Fronts (Metal & Wood)
Francis, S. W. & Co. Ltd.
Haskins, S. & Bros. Ltd.
Jones, Stanley & Co.

Shutters—
Dennison, Kett, & Co.
Francis, S. W. & Co. Ltd.
Gibson, Arthur L.
Haskins, S. & Bros. Ltd.
Lift & Hoist Co.
Thornborough & Co. Ltd.

Silicate Cotton—
Jones, Fredk. & Co. Ltd.
McNeill F. & Co. Ltd.

Slag Wool—
Jones, Fredk. & Co. Ltd.
McNeill F. & Co. Ltd.

Slates—
Builders' Material Association
Hobson, W. D.
Lamb, W. T. & Sons
Lawford & Sons, Ltd
Sessions & Sons Ltd.

Slating Contractors—
Etridge, J. J. Junr., Ltd.
Macguire, John

Sprinklers (Automatic)—
Mather & Platt Ltd.

Stable, &c., Fittings—
Bayliss, Jones & Bayliss, Ltd.
Haywards, Ltd.
Musgrave & Co. Ltd.
Nicholls & Clarke, Ltd.
Young & Marten, Ltd.

Stair Treads—
Safety Tread Syndicate, Ltd.

Staircases, Verandahs, &c.
Art Metal Construction, Ltd.
Carron Company
Davis, H. & C. & Co.
Haywards Ltd

Steam Cleaning—
Steam Cleaning Corporation

Steel Fittings—
Art Metal Construction Co.
Crittall Mfg. Co., Ltd.
Grovesend Steel Ceiling Co.

Stone Restoration—
The Stone Preservation Co., Ld

Stone—
Bath & Portland Stone, Ltd.
Johnson, S. & Son

Strong Rooms—
Hobbs, Hart, & Co Ltd
Tann John Ltd

Stoves, Ranges, Mantels—
Carron Company
City Iron Co.
Clark, Hunt & Co., Ltd.
Hartley & Sugden, Ltd.
Interoven Stove Co. Ltd.
Lumbys, Ltd.
Nicholls & Clarke, Ltd.
Musgrave & Co. Ltd.
National Radiator Co., Ltd
Parkinson Stove Co.
Potterton Thos.
Richmond Gas Stove Co. Ltd
Self Engineering Co., Ltd.
Sessions, J. & Sons
Smith, S. & Sons, Ltd.
Stimex Gas Stove Co.
Wright, Geo. Ltd
Young & Marten Ltd.

Structural Iron and Steel
Braby, F. & Co. Ltd.
Brattwaite & Co.
Clark, Hunt & Co. Ltd.
Davis, H. & C. & Co
Dawnay A. D. & Sons, Ltd.
Fleming, P. & R. & Co.
Freeman's
Haywards, Ltd.
Henderson & Glass
King & Co., Ltd.
Measures Bros. 1911), Ltd.
Partridge, T. & Co.
Power's & Deane, Ransome's Ld
Shaw, M. T. & Co
Trussed Concrete Steel Co. Ltd.
Wild, James & Co.

Suction Cleaning—
Sturtevant Engineering Co. Ld.

Surveying Instruments—
C. Baker
Clarkson's

Tanks, Cisterns &c.
Braby, F. & Co.
Builders' Material Association
Butterfield, W. P., Ltd.
Farmiloe, George & Sons, Ltd
London Galvanised Iron Co. Ld
Mather & Platt, Ltd.
National Galvanizers Ltd.
Nicholls & Clarke, Ltd.
Shaw, M. T. & Co.
Young & Marten Ltd.

Tar (all kinds)—
Woods, Sons & Co.

Tar Boilers—
Phœnix Engineering Co. Ltd

Terra Cotta—
Dennis, Henry
Hathern Station Brick Co., Ld.
Leeds Fireclay Co. Ltd.

Tiles—
Bomert, Teves and Blankley
Cope & Co
Dennis, Henry
Hodge, F., Ltd.
Leeds Fireclay Co. Ltd.
Maw & Co., Ltd.
Minton Hollins & Co. Ltd
Walker, Chas. & Co.
White, Child & Beney, Ltd.
Wire, A. D. Ltd.

Timber—
Aston Grant & Co., Ltd.
Brown, H., Limited
Calder & McDougall, Ltd.
Ford, H. J.
Gliksten & Son, Ltd.
Hall, L.
Jennings, C. & Co.
Leary, C. & Co.
Longbotham, J. & Co.
Longhurst, E. & Sons
Millar's Timber & Trading Co
Price & Low, Ltd
Priday, S.
Venesta, Ltd.

Tyres—
Bergougnan Tyre Co.
Dunlop Rubber Co. Ltd.
Michelin
North British Rubber Co.
Palatine

Underlining, &c.—
Engert & Rolfe Ltd.
McNeill, F. & Co. Ltd
Vulcanite, Ltd.
Willesden Paper & Canvas Wks.

Ventilating—
Boyle, R. & Son
Dargue, Griffiths & Co., Ltd.
Ewart & Son, Ltd.
Haywards, Ltd.
Keith & Blackman Co.
Kinnell, Chas P. & Co., Ltd.
Murray, S. D. & Co., Ltd.
Rosser & Russell, Ltd.
Sturtevant Engineering Co. Ld

Wall & Ceiling Covering—
Beaver Board Co., Ltd
Fiberlic
Machin & Kingsley, Ltd.
O'Brien, Thomas & Co.
Thames Mills
Venesta, Ltd.
Young & Marten Ltd

Waterproofing—
Adamite & Co., Ltd.
Building Products, Ltd.
Callender, G. M. & Co.
Ebner, J. F.
Kerner-Greenwood & Co. (Pudlo)
Super Cement, Ltd.
Titon (Liverpool) Ltd.
Torbay & Dart Paint Co.

Wire Bins (Iron)—
Bayliss, Jones & Bayliss, Ltd.
Farrow & Jackson

Wire Screens—
Duke, Waring, Crisp & Co.
Johnson Clapham & Morris, Ld
Moriarty & Co. (1911) Ltd.
Parker, Winder & Achurch

Window Frames & Sashes
Braby, F. & Co Ltd.
Carron Company
Clark, Hunt, & Co. Ltd.
Crittall Mfg. Co., Ltd.
Hayter, Ltd.
Haywards, Ltd
Williams & Williams, Ltd.

Wood Flooring—
Acme Flooring and Paving Co.
Ebner, J. F.
Improved Wood Pavement Co.
Turpin's
Zeta Wood Flooring Co.

Wood Preservative—
Fuller, John H. & Co. Ltd.
Maclean Wm. Sons, & Co.
Major & Co. Ltd.
Reparo, Ltd.
Sterns, Ltd.

THE BUILDER

A RECORD OF ARCHITECTURE AND CONSTRUCTION.

WITH WHICH IS INCORPORATED THE "BRITISH ARCHITECT."

VOL. CXIX.—No. 4059. NOVEMBER 19, 1920.

SOCIALISM AND THE BUILDING INDUSTRY.

THE prosperity and stability of the building industry form such essential conditions for progress that everyone connected with this field of labour should seriously consider the present position of employers and operatives and do all within their power to restore those conditions which can alone result in adequate production and full employment. We have already quoted the introductory remarks of the Management and Costs Committee of the Industrial Council for the Building Industry, but have not dealt with the position which we are faced with now as the result of the latest deliberations of this assembly. It will be recalled that the scheme before the Committee was the formation of "a great self-governing democracy" organised for the public service. Under the proposals the whole industry would be under the control and vested in the actual producers—that is in the operatives and managers—the scheme aimed at being the disappearance of the capitalist. Broadly speaking, these proposals were put forward by the operatives and opposed by the employers. Fortunately, the scheme was not voted upon, but eventually referred back, and thus a definite break between these two interests was avoided. Hence, time exists before the next meeting for reflection, which, we hope, may be sound and dispassionate. Were we living in an era of stability and good fellowship, and did the industry command public confidence as to prices and output, we should be more able to feel that drastic changes could be carried through successfully without injury to employers, employed and the public; but as things stand at present, with building owners tired of indefinite costs and poor output, profiteers' wealth largely squandered and everyone restive under immense taxation burdens, and hordes of Government officials still complicating private transactions, we should be failing in our duty to our readers not to emphasise the absolute necessity for an attitude of moderation and conciliation on both sides. This Industrial Council was set up in order to benefit the industry and enable it to attain greater prosperity for everyone, and by increased efficiency to help and encourage the public it serves. It would, indeed, be a matter for regret, almost for condemnation, if its deliberations resulted in a break between employers and operatives, for the very strength and comprehensiveness of this assembly would make such a break far more important and far-reaching than anything of the kind recorded in previous history. Part II of the report with which we are here concerned gives us a revised draft of the original interim report, and suggests that the great task of the Industrial Council is to develop an entirely new form of industrial control by the actual producers. Nothing short of this, it is asserted, will produce the full development of the "team spirit which is the key to the whole problem of production."

The ideal of public service, it is claimed, carries with it the removal of profit-making as the object of industrial operations. Now, to begin with, we do not think that the Industrial Council was really formed to develop such a system as is put forward, and secondly, although we admire and respect the sentiments with regard to profit making, can it be seriously contended that at the present level of human virtue those ideals are capable of being sustained? We should feel more re-assured did the report convey some definite statement that profits, after paying expenses, would be allocated to some purpose consistent with these ideals; but we find later that surplus earnings shall be devoted to forming adequate reserves, purchasing capital, making loans for development (presumably at interest) extra payments to personnel, replacement of lost capital, other "desirable" purposes, and education and research. These objects seem to us to resemble in no small measure the worldly objects of any joint stock company, with the exception of the last (placed last but two in the list) which is after all only a far-sighted benefit to the industry itself. Dealing with alternatives to these proposals it is stated with much candour that any scheme of payment by results is strictly forbidden by most trade unions. The report would thus seem to suggest that in this great upheaval the unions are not prepared to modify their attitude though they expect extraordinary changes on the part of the employers. They fear, we are told, a weakening of their authority among the workers. We have no quarrel with the unions, which have done much splendid work, but if they are not going to allow individuality to assert itself they will do the trade the worst turn imaginable. Everyone knows piece-rate difficulties in practice, but we are very sorry to see such a definite statement against personal incentive. Profit-sharing and co-partnership schemes are mentioned, and we are glad to find that "it is believed that the trade unions would be prepared to reconsider their attitude" in these matters, the condition being that surplus earnings are devoted to the common service of the industry. One of the main objects of the scheme is to dissociate capital from management wages. Capital is to be hired at market rates, and adequate wages are to be paid for management. What does not appear very definitely, and is a matter of supreme importance, is the conditions of management tenure. An employer is presumably to become a manager and will receive interest on his capital invested in the business and a salary. Regional and local Councils are to be formed to control the industry and the admission of new firms, and presumably specific managers will hold their appointments as officials under these Councils. Is it really to be expected that a man—and we imagine most employers would come under this category—who has from small beginnings built up a business by the sweat of his brow, is to place himself in this position? Even the subject of goodwill is very vaguely touched upon, and though we imagine every business would be initially bought at a valuation, this by no means appears. Apart from these considerations, which do not appear to us to accord with the plea for "freedom and security of initiative and enterprise," can we reflect with equanimity on the creation of a host of regional and local officials, and the delay, worry, and expense which such a vast organisation will involve? We have had bitter experiences of control during the war, and the operatives as well as the employers are demanding freedom and Government economy. Are they seriously about to set up a bureaucracy to control so great and diverse an industry as building? For this scheme is frankly control. Nothing is finer than to strive after ideals, or to put in motion machinery which can make workable ideals which are within reach, but let us beware of breaking up established institutions resulting from the experience of generations for ideals based on false assessment of human progress towards perfection. In Utopia, yes; in this year of grace, when the god of greed, avarice and disregard for others has, Scylla-like, thrust its ugly head so much into our midst recently, let us be careful that we do not head for a gigantic and crushing trust.

NOTES.

The Cenotaph.

A SOMEWHAT irresponsible writer, we may presume, has said that the one thing Sir Edwin Lutyens really likes about the Cenotaph is "that none of the architectural papers have realised how it was done; they have tried to bring out reproductions of it and all of them have used straight lines instead of curves." We might suggest that the published photographs have only been able to show what the camera reveals! In venturing to give a small impressionist sketch of the Cenotaph to-day we are acutely sensitive of the fact that if the curved lines referred to were apparent to that small scale it would be hopelessly wrong. The object of the curved lines in such a design is to make their influence felt in so subtle a way that no drawing except to quite a large scale could possibly show them. The way in which the use of an entasis has been abused in recent times is proof enough that the delicate refinements of Greek art have found no wide or sensitive appreciation amongst us. We can hardly hope that the nice refinements of Sir Edwin's excellent pylon appeal to a very extended public, but its striking position and its timely erection have helped to make it the centre of great interest and a telling focus for the thoughts and sorrows of thousands. It has a simple elegant dignity, which has perhaps never been quite accomplished in any other memorial of its kind in this country. If it does not uplift or inspire us it may at least evoke a reverential feeling of what it stands for—the heroic sacrifice of the Empire's sons.

Inspired Craftsmanship.

ARE we not liable to overlook the spirit which informed so much of the fine mediæval craftsmanship we so much appreciate? Religion and superstition—the reverence for saints and the dread of devils—have a widely different meaning for the bulk of Englishmen to-day, and cannot inspire the workman's craft as once they did. But we have a great deal of fine craftsmanship now, and we must not expect from it the informing spirit of earlier times. What shall be the spiritual impulse to give it quality and meaning if a pagan temple or tomb or a Gothic church or monument stir our thoughts and aspirations to an equal degree, or—do not stir them at all?

Cambridge County Hall War Memorial.

[This tablet, executed in cast bronze, has been placed in the Cambridge County Hall by the members of the County Council, in commemoration of the members of the staff who fell in the war. The modelling was executed by Mr. F. Buckerfield, at the local School of Arts and Crafts. The design is by Mr. H. H. Dunn, A.R.I.B.A., the County Architect.]

The Care of Our Churches.

"IRRESPONSIBILITY is the fatal flaw in all bureaucracy," says Mr. Edmund Walters, and therefore it is to be hoped we shall not give over the care of the restoration of our ancient churches to the Office of Works. That the Office of Works has vastly improved its capacities, especially during the war, we must all admit, but we think the suggestion that its activities should know no limits will be strongly resented by the architectural profession. One begins to wonder whether the long and arduous training and the special natural endowments needed for the making of a capable architect are leading to the creation of a profession which is so hardly used that it will soon lose all attractions as a career. Of course, as an artist, the architect will be willing to take many risks, but as a business man he can see limits to his wishes for success.

Failure of Pisé-de-Terre.

WE have some pertinent comments on *pisé-de-terre* as follows, translated from the *Görlitz Gazette*, which will perhaps be explained away on the ground of bad execution. "The new settlements near the Hospital at Görlitz, which were erected on the much-praised *pisé-de-terre* system, provide a picture of wretched conditions. Through the continual rain these houses have become soaked to such an extent that entire walls, gables, &c., have collapsed. On Monday morning the workmen were busy in pulling down half-finished houses, in order to prevent the public from noticing the painful result of this method of building. Some of the buildings have been buttressed up to prevent further cases of collapse. The *pisé-de-terre* buildings near the Melanchton School in Görlitz look just as bad. Some of the chimneys have collapsed because the rammed earth walls cannot carry the weight of the brick-built chimneys. Those houses which have already been rendered with stucco show large cracks. If that happens now, what will be the conditions when the houses are occupied and through the banging of doors, &c., the cracks will get larger and new ones appear? The result is that such houses form a breeding ground for vermin. Anybody who does not believe it should ask those who had to live in *pisé-de-terre* houses in Russia during the war. While the war lasted we had "substitutes" all the time everywhere, and we

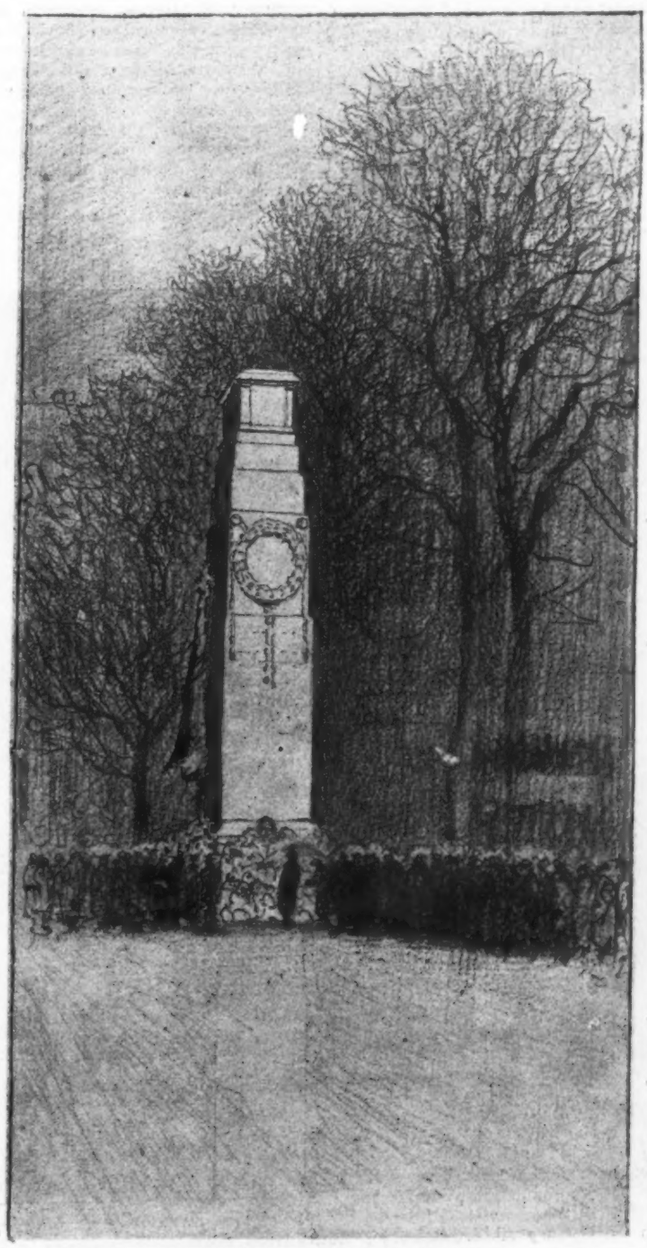
have been swindled with them. Now one would think everybody with sense would be glad to get the real thing once more. What advantages has this highly-praised *pisé-de-terre* method brought? None. On the contrary, the demolishing and re-erection of the soaked and tumbled-down houses causes enormous extra costs, and our Government which recommends such methods would really be wiser to use that money for buildings erected by well-known and tried systems instead of squandering it in such costly trials. Retorts are quite useless, for here are the facts which speak for themselves. If anybody has real doubts, let him come, and see, and judge."

Education in Industry. NOTHING has tended to prove more conclusively than the events of recent months, even the coal strike, the need for the development of education in industry. "When we stop learning we stop living—we are really dead," said Mr. W. J. Deeley, B.A., in a lecture on this subject recently, before the members of the Yorkshire (Leeds) Centre of the Industrial League and Council, at a week-end conference. "It is a dangerous delusion," he added, "that education is to prepare for a living and retirement to enjoy living. In a sense, education and industry should be regarded as the same thing. Instead of retiring to enjoy oneself, one should think of bringing enjoyment into industry. If one wants to give up school, it is a serious criticism of school. In the same way, if we wish to give up industry it is a serious criticism of industry. But we need to be fitted for our work to have joy and pleasure in it. The best way to teach is to study the learner and not exclusively bother about the method of teaching. See how the pupils are learning—never mind the teaching. The foreman should regard himself as a teacher in this sense. Records should be kept by the foreman, and points concerning each worker should be jotted down, so that when opportunity of promotion comes no deserving worker should be overlooked."

Spanish Art at Kensington. OUR wonderful treasures at South Kensington are illustrated in a timely and striking way by the collection of Spanish art now on view at the Victoria and Albert Museum. There is nothing of doubtful nature here, for all is virile and beautiful. It includes sculpture, inlaid wood and furniture, faience, tiles, jewellery, locksmith's work, metal-work, carved ivory, book-binding, engravings, and illuminated MSS. Where could one find a more beautiful thing of its kind than the enamelled earthenware bowl and cover from Valencia (late 15th cent.), with its fine decoration in colour and metallic lustre?

A Family of Architects. AN event of much interest to many members of the architectural profession took place on the 16th inst., when Captain Michael Waterhouse, M.C. (Sherwood Rangers Yeomanry), was married to Miss Rissa Barclay, daughter of Colonel Hubert Barclay. Mr. Michael Waterhouse, who is a B.A. of Oxford, and a member of the same college as his father, Mr. Paul Waterhouse, recently passed the Special War Examination, and is now an Associate of the Royal Institute of British Architects. He is the third generation of a distinguished family of architects, whose office was founded in London by Alfred Waterhouse, R.A., in 1865, and it will be the hope of his many friends and all who have a regard for the maintenance of a high professional status in architecture that the traditions of the office will be carried on for generations to come.

Temporary Scaffolding. ONCE again the structural and decorative necessities of our street frontages raise the suggestion for picturesque and even practical development—the case in point being a portion of frontage in Victoria-street where the scaffolding and sloping projection above it might afford useful hints to our designers and sensible alleviations of building regulations. There is certainly some compensation to shopkeepers from the slight darkening of their windows by such an arrangement in the additional attractiveness and comfort of a covered footway.



An Impression of the Cenotaph.

GENERAL NEWS.

Professional Announcement.

Mr. G. Capon, M.S.A., has now commenced practice as an architect at 11, King-street, Sudbury, Suffolk; he is prepared to receive manufacturers' catalogues for filing.

R.E. Re-union Dinner.

A Re-union Dinner to all old members of the 4th London Field Co., R.E., will be held at the Veterans' Club, Bedford-square, on January 15, 1921. Applications for tickets should be made to Major S. H. Fisher, M.C., R.E., 14, Queen-street, E.C.4.

Society of Architects' War Memorial.

A war memorial to the members of the Society of Architects who fell in the war, designed by Messrs. Poynter & Wenyon, was unveiled at the Society's premises, 28, Bedford-square, W.C., on Thursday last week, by the President of the Society, Sir Charles T. Ruthen, O.B.E., F.R.I.B.A.

A Dorchester War Memorial.

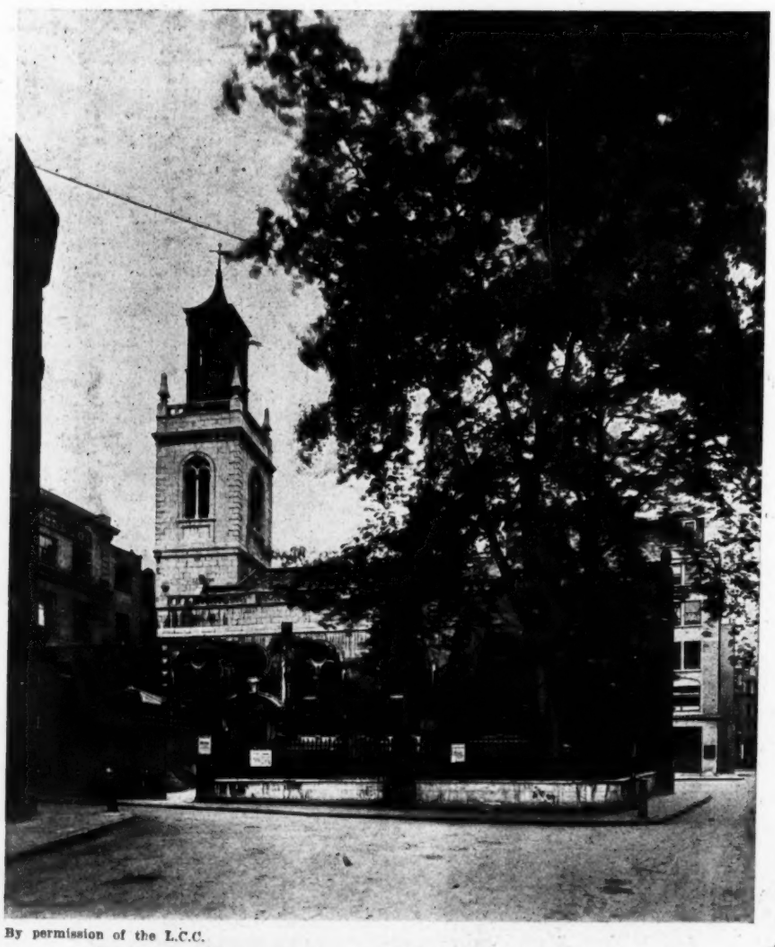
A war memorial to the postmen of Dorchester who fell in the war, in the form of a white marble tablet inscribed with the names of the fallen, has been designed by Mr. Thomas Hardy, O.M., and erected at the Dorchester Post Office.

Colchester Castle.

Colchester Castle, which has recently passed from private ownership into the possession of the Corporation of Colchester, has now been officially opened to the public. The castle was built during the reign of William the Conqueror. Much Roman material was used in its erection, and remains of Roman walls and buildings found in its precincts have led to speculation as to its exact age. The design of the keep somewhat resembles that of the White Tower at the Tower of London. The grand staircase is the widest newel staircase in England, while the keep is much larger than any other Norman keep in the country, having an area of 17,000 ft. The castle walls are of immense thickness, varying from 30 ft. at the foundation. The castle is to form part of the local war memorial.

The Victoria and Albert Museum.

A public lecture on "The Modern Art Movement in Sweden and its Application to Manufactures" will be given by Mr. Erik Wettergren, of the National Museum, Stockholm, in the Museum Lecture Theatre at 3 p.m. to-day, November 19. The lecture will be illustrated by lantern slides. A temporary exhibition of Spanish art has been arranged on the floor of the East Hall at the Museum. The Museum is rich in fine examples of Spanish industrial art, and the representative collection which has now been put together includes architectural details and sculpture, pottery and glass, books and illuminated manuscripts, goldsmiths' work, jewellery and iron, the great *retable* from Valencia, textiles, embroideries and furniture. The Exhibition will remain on view while the exhibition of Spanish paintings is open at Burlington House.



By permission of the L.C.C.

St. Mary Aldermanbury: South front, from Aldermanbury.

THE THREATENED CITY CHURCHES.

THE admirable and timely Report which has been prepared by Mr. James Bird, the Clerk to the London County Council, and Mr. G. Topham Forrest, F.R.I.B.A., the Architect to the Council, on the "Proposed Demolition of Nineteen City Churches"* and which has been issued by that body, should be read by everyone interested in the questions raised by the Bishop of London's recent Report recommending the removal of these nineteen churches, and the retention of the towers of seven of them. These drastic proposals came under the consideration of the Local Government Records and Museum Committee of the Council, who instructed the Clerk to the Council to report on the historical interest of the churches in question and the way in which the money for their erection was provided, and the architect to report on the architectural and antiquarian features of the buildings. These reports have been amalgamated into one, and deal with the gradual diminution in the number of City churches, the historical and architectural interest of each church and some useful general observations. The Report contains a number of admirable illustrations of the churches, one of which we give herewith by the courtesy of the Council; a map, prepared by Mr. Topham Forrest, which shows at a glance the position of the nineteen churches; the churches which would remain if the proposals of the Commission were carried out; the churches which were rebuilt after the Great Fire of 1666 and have since been demolished, and those which were burnt down in the fire and have not been rebuilt; the old City wall; the present City boundary, and the area of the Great Fire. Both the Clerk and the Architect to the Council record their appreciation of the work done in connection with the preparation of the Report by Mr. W. W. Brassies and Mr. C. J. T. Dadd in their respective departments.

The Report should be of great service to all those who are concerned in the preservation of these buildings, especially the General Observations, in which we are told that "in the case of twelve of the churches it is probable that the greater portion (at least) of the expenditure in connection with the rebuilding of the present structure was met by public money," and that, though the records which have been examined "are not absolutely conclusive, there can be little doubt that, at any rate, the main structures of the new churches were built out of the proceeds of the tax on coals," though an "exception must be made in the case of "St. Mary Aldermary, which was rebuilt by a private benefactor before the Public Fund was settled by Parliament on coals."

The London County Council are to be commended on the publication of this Report, which shows at a glance how much we shall lose if the extraordinary recommendations of the Bishop's Commission are carried out. We shall be surprised if they are, but it is well to be prepared, and the Report will do much to defeat those who contemplate the destruction of these City landmarks.

The Surveyors' Institution.

Mr. Alexander Goddard, C.B.E., Secretary of the Surveyors' Institution, has recently given evidence before the Imperial Forestry Education Committee on the subject of the education of the landowner and land agent, particularly in connection with forestry; before the Tithe Redemption Committee of the Ministry of Agriculture, which is engaged in estimating the probable value of tithe rent charge in the immediate future for the assistance of the Minister in determining the compensation to be paid on redemption; and before a Departmental Committee of the Admiralty on the employment of quantity surveyors on the staff of that department.

* Published at 3s. 6d., and to be had through any bookseller, or P. S. King & Son, Ltd., 2 and 4, Great Smith-street, Victoria-street, S.W. 1.

CORRESPONDENCE.

Scientific Management.

SIR,—I have, with considerable interest, followed Major Pells's articles entitled "The Only Way," which have appeared in your Journal. In this connection I have one or two criticisms to offer and suggestions to make :—

Major Pells has usually—and quite rightly—kept to generalities, and most of the propositions he sets forth find my general agreement. When, however, he comes to deal with matters of detail, I disagree with him. One such statement will show our differences. It is suggested that an experienced clerk can competently carry out time studies. As many builders and others will have read these articles who are not yet acquainted with any of the standard works on scientific management—for such is the subject that Major Pells is writing upon—I feel it should be clearly understood that if any real benefits are to be expected from experiments of the nature suggested by Major Pells they will not be achieved by simply reading these otherwise admirable articles and setting a junior clerk to work. Although not complicated, the subject is far too complex for that.

I venture to suggest that the scope of this highly-technical branch of industry, known in America, France, Belgium and Germany as "scientific management," is not thoroughly appreciated by the general body of the British business world. The name implies nothing : or, at any rate, nothing that we can imagine when we ordinarily use the term. It is a subject that can only be handled in practice by an expert, and so far as I know they are few and far between. For a builder to set in and experiment with improvements on plant, organisation and methods of work on anything like a comprehensive scale would be a long and costly business (although I agree the money in certain circumstances would be well expended) and, in fact, he would be doing pioneer work that should be undertaken by the industry as a whole.

May I, therefore, suggest that the Master Builders' Federation or some other authoritative body in the constructional world appoint a thoroughly competent expert on "scientific management" to report on the state of efficiency reached by the industry as a whole in this country, including such questions as the standardisation of plant, costs, and organisation generally ? When this report is furnished, I have no doubt the expert will be instructed to set up the standardised organisation in some convenient locality where building work is in progress, so that all the questions in connection with the method of management could be thoroughly worked out in practice and tabulated for the benefit of the industry at large. This plant, of course, would be open for demonstration purposes, and investigations would be carried on there with a view to arriving at an equitable scheme of work, wages and profits.

If this suggestion should be carried out, it would not only obtain for the building industry considerable benefit at an exceedingly low cost but would place it in the position of being the premier industry in this country from the point of view of efficiency.

"REFORMER."

[*** The suggestion is a good one, but it has already been made and the Management and Costs Committee of the Industrial Council for the Building Industry had the question of scientific costing and management referred to them. Their report, which appears to have gone beyond the terms of reference, and to have ignored the questions raised by our correspondent, was dismissed at the meeting of the Industrial Council last week. Our notes of the discussion appear on p. 586.—ED.]

Acoustics and the Sheffield Concert Halls Competition.

SIR,—Mr. Bagenal's article on acoustics in your number for November 12 is of absorbing interest. The writer has evidently studied his subject thoroughly, and his criticism of the acoustic properties of the large halls in the first premiated design for the concert halls at Sheffield is therefore valuable.

"A disappointed competitor" appreciates this article all the more, as it confirms him in his conviction that his own design was practical, and that his two halls, had they been built, would have been good acoustically. This cannot be said of the first premiated design, and it is disappointing to architects and discouraging to competitors to find an important concert hall about to be built on the lines of one of the best-known failures in the country, from singers', speakers', and audiences' experience.

One has a feeling that the Sheffield halls will never be built as originally designed, but that the finished work will resemble other, and unsuccessful, designs far more than that which was awarded first place.

ARTHUR WELFORD.

London.

The British Museum Volutes.

SIR—Whatever methods the Greeks employed when producing their volutes seem to be entirely lost to us. The conjectures as to the original method will not, I think, hold good, it being impossible to make use of the three or four small indentations, seen in some of the volutes, in describing the curve. These volutes have interested me considerably and induced me to work out a method of my own. They are not of every day requirement, but when it is necessary to set them out they can be put on paper with the utmost confidence.

The only really necessary data is the given vertical height, the rest is certain to follow. By my method any volute, spiral or scroll, can be set up at once, any irregularity in any existing volute, &c., can be rectified, and the broken curve made a true curve.

I have pleasure in showing and describing the method by the drawings herewith and the explanations of the three figures :—

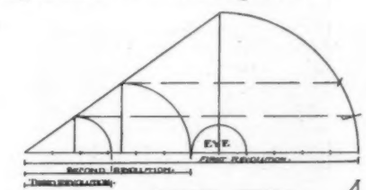


FIG. 1.

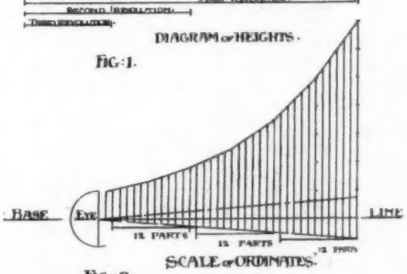


FIG. 2.

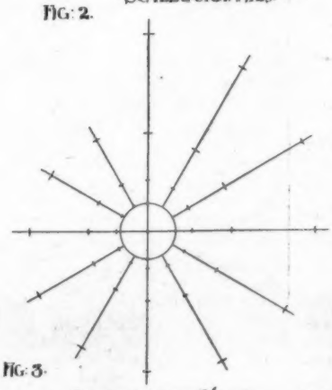


FIG. 3.

Fig. 1.—A line equal to height of volute is divided into twelve equal parts, set up perpendicular on seventh division equal to five of the twelve parts and complete triangle. On quadrant set off 30 in. and 15 in., and from these points draw lines cutting hypotenuse ; from these points drop perpendiculars and describe the small quadrants. The heights for three revolutions are now given. Set off two parts for eye of volute.

Fig. 2.—Draw a base line and divide into thirty-six parts, twelve for each revolution, and number from one to twelve. Transfer the heights from No. 1 diagram to their respective ordinates on Fig. 2. Connect these points either by straight lines or by a regular curve. By taking the ordinates above or below the base line we have other lengths on radii through which to draw the curve.

Fig. 3.—Draw at right angles centre lines. Set out the eye from diagram and from centre apply the ordinates to radii put in by set square of 30 in. and 60 in. If necessary introduce an extra radius so that the curve can be put in by hand, or use the ordinary bisections to find radius and draw curve by compasses.

R. RAMM.

The Position of the Building Trade.

SIR,—Mr. H. Bryant Newbold offers largess to charity if I can show in what way my suggestion for an "architectural dictator" to put our house in order differs from a confluence of architects, mechanics and labourers debating in beery brotherhood. My answer would be "In every way," but the onus surely is upon Mr. Newbold to prove otherwise. For he upbraids me for a plagiarist with trite quotation.

In the matter of politics, architectural or otherwise, originality is given to few, and I suggest that to obscure one's observations under a wealth of verbiage does not necessarily imply it. But if my supplication for a leader in the building trade is in very truth but an imitation of Mr. Newbold's for a festive confraternity, why then sincere flattery is surely no matter for such scathing censure.

PERCY BARTLETT.

Fees Payable to Quantity Surveyors.

SIR,—I am directed by my Council to refer to the editorial comment appearing at the foot of my letter inserted in your issue of the 12th inst., and to call your attention to the fact that it explicitly states in General Housing Memorandum No. 31 that "the conditions of engagements of architects and surveyors shall be those which are customary in the respective professions."

My Council, therefore, contend that a quantity surveyor who has prepared bills of quantities for a scheme of 250 houses is entitled to be paid for the whole of his services and not upon 150 houses which, after his work has been completed, it is decided to erect. If the quantity surveyor is only entitled to payment in respect of the buildings actually erected, what is his position in the event of the whole scheme being abandoned ?

A. G. CROSS. *Hon. Secretary.*

The Quantity Surveyors' Association.

BUILDING STONES.

IN his final lecture at the Royal Academy of Arts, Dr. Laurie (Professor of Chemistry at the Royal Academy) dealt with the subject of building stones, describing briefly the history of their formation and illustrating their actual structure by means of a series of micro lantern slides. He pointed out the importance of having a microscopic examination made, more especially of the cementing material in various sandstones, with a view to selecting suitable building stones, and suggested that a survey of the various sandstones to be found in different parts of London accompanied by an examination of these stones by the microscope would throw a great deal of light on the whole question of the most durable stone for the London climate. He then discussed the question of stone preservatives, and while stating that he had no particular preservative to recommend at the present stage, he suggested that it was time that systematic observations were made on preservatives, and described the methods he was using to test whether a preservative was likely to be of any value, and illustrated this description with lantern slides, showing actual results obtained.

ARCHITECTURE AND TOWN PLANNING

MR. W. S. PURCHON, M.A., A.R.I.B.A., Head of the Department of Architecture and Civic Design at the Technical College, Cardiff, lectured on November 10 to a large audience at the University of Birmingham on "Architecture and Town Planning," the lecture being one of a series on "Current Tendencies of Thought."

After drawing attention to some of the main lessons to be learned from the experience gained during the great periods of the development of European architecture, the lecturer dealt with the various schools of architectural thought which flourished in this country in the nineteenth century, attempting to show the contribution made towards future progress in each case. He suggested that the present period was a formative one and that success was most likely to follow a development based on traditional lines with a steadily increasing importance attaching to the special requirements of the time and place in which the artist was working. After dealing with the town planning of the past, he referred to the unhappy result of the haphazard growth of towns and cities during the last century, and the neglect of the architect as a designer of small houses; better results were likely to accrue, he said, from the vigorous attempt now being made by properly-trained men to produce more efficient types of individual houses, together with properly-devised lay-out schemes.

The lecturer referred to modern methods of studying the past and present conditions of towns and cities, and of using those studies as bases for schemes of future development. He said he felt that these bigger issues should be a great source of inspiration to architects and other artists, and bring them into closer touch with the community at large. Architecture was not only of material value to the people, but it was a great living art comparable in its inspiring influence to the arts of literature and music.

COMPETITION NEWS.

R.I.B.A. War Memorial.

The first three designs submitted in the competition to be placed in the premises of the Royal Institute of British Architects have been placed as follows:—

First: Mr. Trenwith Wills, Student, A.R.I.B.A.

Second: Mr. W. Harding Thompson, A.R.I.B.A.

Third: Mr. Robert Cromie, A.R.I.B.A.

The drawings submitted will be on exhibition at the Galleries of the Institute (9, Conduit-street, W.1) during the week commencing November 22.

Portsmouth.

FOR THE WAR MEMORIAL COMMITTEE.—Designs for a monument, to cost £10,000. Sending-in day December 6. (See advertisement this week).

East Ham.

FOR THE EAST HAM HOSPITAL COMMITTEE.—Designs for a general hospital, to cost £40,000. Sending-in day, February 25, 1921. (See advertisement November 5.)

Llandudno.

FOR THE WAR MEMORIAL COMMITTEE.—Designs for a war memorial, to cost about £1,200. Sending-in day, December 1. Further particulars from Mr. A. Conolly, Town Hall, Llandudno. Members of the Royal Institute of British Architects and the Society of Architects are requested not to take any part in this competition without first ascertaining that the conditions have been approved.

Public House Competition.

FOR THE WORSHIPFUL COMPANY OF BREWERS.—Designs for an improved public house. This competition is limited to Members and Licentiates of the Royal Institute of British Architects, and the conditions of competition may be obtained from the Secretary, R.I.B.A., 9, Conduit-street, W. 1, on deposit of £2 2s. Sending-in day, January 31, 1921.

Royal Engineers' Memorial.

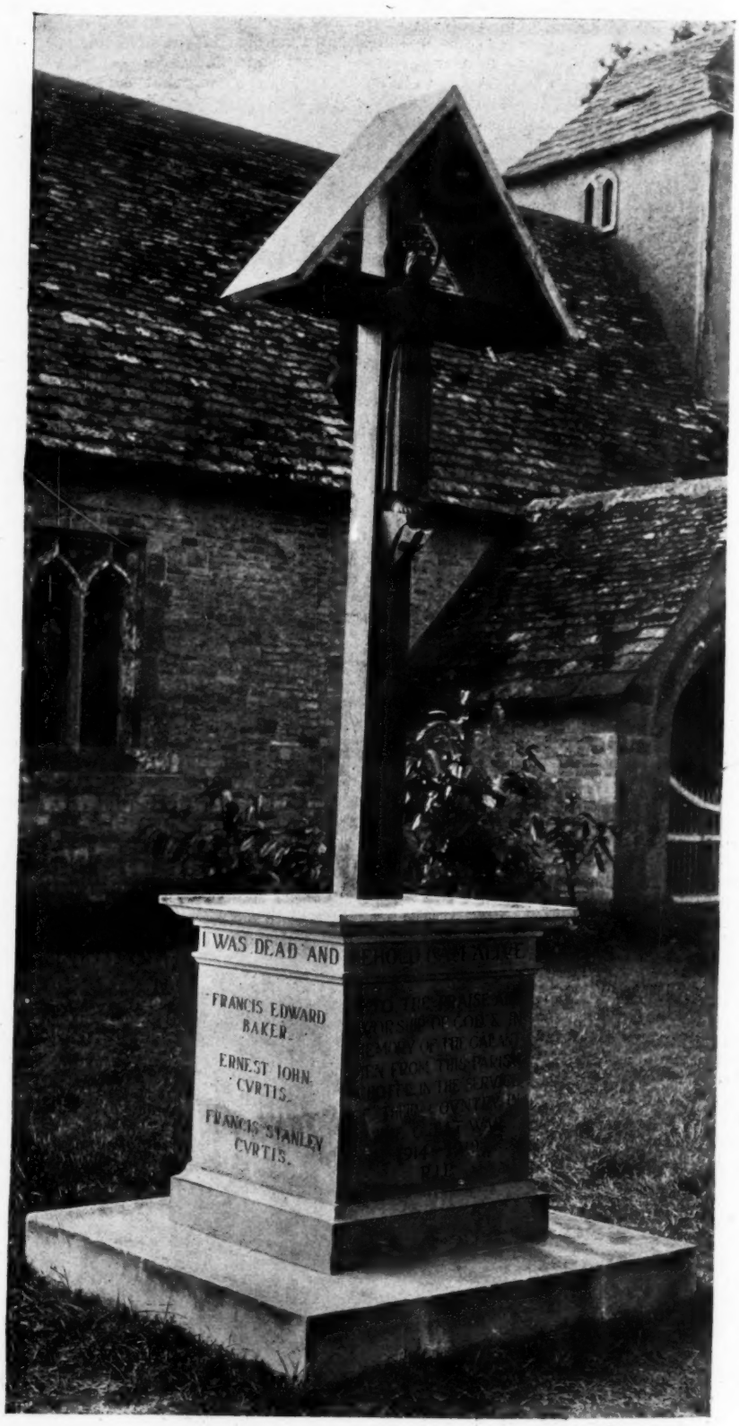
FOR THE R.E. WAR MEMORIAL SUB-COMMITTEE.—Design for a war memorial. Sending-in day, March 17, 1921. (See advertisement this week).

Cumberland.

DESIGNS FOR A MEMORIAL HALL.—Further particulars from Mr. J. McMurray, The Square, Dalston, Carlisle. Sending-in day, November 30.

Other Competitions.

The following competitions are also still open:—Gateshead War Memorial, sending-in day, December 1 (banned by R.I.B.A. and Society of Architects); Liége War Memorial, December 1; Lockerbie War Memorial, January 31.



War Memorial at Leigh Church, Wilts. By MR. H. CHADWICK WINDLEY, M.A.

[This memorial consists of an oak cross fixed in a base of Box ground stone. The figure on the cross is a visible comment on the text on the base, and suggests the "*Christus Consummator*," reigning with kingly crown and robed, with outstretched hands, as the Great High Priest. The message given is "Life through death—fruitfulness through sacrifice." The carving was carried out by Mr. H. P. Jackson, who, in the case of the robed figure, had the advantage of a full-size cartoon by Mr. C. O. Skilbeck.]

THE STUDY OF OLD BUILDINGS.

THE following is a paper by Mr. Arthur Keen (Hon. Secretary, R.I.B.A.), read by Lieut.-Colonel H. P. Cart de Lafontaine, O.B.E., A.R.I.B.A., at the Conference on Architectural Education held in Paris last week. A report of the Conference and other papers are given on page 578 :—

Among all the methods of training an architect for the practice of his calling, none was advocated by the men of the past generation with more earnestness and persistence than the study of old buildings by measuring and drawing them to scale, and by sketching them in perspective. Study by this means is fascinating in itself, and it was adopted with such enthusiasm that nearly all the notable old buildings in our country have been drawn over and over again with the utmost faithfulness, and often with most beautiful draughtsmanship. The idea has been, of course, that in making a complete reproduction of a building on paper every feature of its construction, arrangement and decoration is ascertained, noted and remembered. In this way buildings have been delineated so completely that as archæological records the drawings leave nothing to be asked for. Even the accidents of building, the peculiarities arising out of inaccurate work or the re-using of old materials, have been faithfully reproduced, and nothing from the pattern of the floor tiling to the jointing of the leadwork on the roof omitted. In very many respects the method justified itself by its results, and the success of the Gothic Revival in England is in great measure due to it. Students obtained such intimate knowledge of the methods of the ancient builders, of the way in which walls, windows, roofs and arches were formed, and the minutest details of tracery and moulded stone or wood were handled, that they applied their knowledge to the problems of modern building with confidence and success, and often with most beautiful results. Whatever may be thought of the ethics of reviving in modern times and by modern methods a system that was so intimately allied to the life, thought, social conditions, and methods of workmanship of the mediæval times, there can surely be no question of the intrinsic beauty of the resulting buildings —such buildings as the Houses of Parliament at Westminster, St. Agnes Church at Kensington, Bodley's great church at Pendlebury, the modern work of many of the Oxford and Cambridge colleges and other buildings throughout the length and breadth of the land.

With these results before us we have to consider very seriously whether this method of study is still to be advocated, how far it is to be trusted, and how it can be used to even better purpose than before. It is essentially the method upon which the Gothic Revival flourished; it led to the production of most remarkable books, including, most remarkable of all, the great Dictionnaire and other books of M. Viollet-le-Duc; and it certainly was the method followed by the men who produced architectural work of great power, beauty and interest. On the other hand, we have to remember that the great men of the Gothic Revival, Pugin, Butterfield, Street, Bodley and the rest, were men of genius, and in the hands of a genius any method of study produces good results. The general average of attainment was, we must admit, rather poor, and one knows of only too many cases of architects whose study of old work was of the most exhaustive kind, and yet their own original work was merely commonplace.

We have transferred our affection in the present day from Gothic work to Classic, but the method of study is equally applicable to both. Are we to trust to it implicity, are we to abandon it, or are we to use it within the limitations that we think fit to impose? It appears to me that there is this essential difference to be borne in mind—that far more than in the case of the works of Greece or Rome or of the Italy of the Renaissance the architecture of the mediæval time was the logical outcome of particular methods of construction, of the limitations imposed by particular materials used and applied or accepted by men in whom artistic expression was an instinct, almost an unconscious tradition. The proportions and composition and ornaments of a Gothic building are constructional in their origin: in the Classic example they are the considered effort of one who seeks by conscious arrangement to produce effects that he values—effects of light and shadow, of concentration and contrast, of noble mass and beautiful outline; of subtle proportion, of breadth and dignity, richness, power, all the qualities by which stone and earthenware, metal and wood, may be shaped and disposed so as to convey to the spectator the feeling, the mental attitude and the power of the artist. It is therefore clear that if the study of old buildings by means of measurement and drawing is to have its full value for the student it must be accompanied by close and critical analysis. The mere record of the external facts may be useful for reference, but for the purpose of effective study it is necessary to understand how the design has been produced, and upon what factors its success depends. I suggest, therefore, that writing should be used to supplement drawing, and the student should regard as more important even than his drawings a carefully reasoned statement or report on the building, setting out the impressions that he receives from it, its arrangement in relation to its site and surroundings, the features of its plan, especially the disposition of the blocks that form the elements in its external composition, the proportions and treatment of its rooms or halls, the size and treatment of its courtyards, the size, spacing and grouping of windows, the methods of construction and roofing adopted, and their influence on the design, the skyline, the qualities upon which the designer has depended, whether of boldness, richness, refinement, grouping or proportion, and how these qualities are achieved and maintained; the relation of wall space to openings, of light to shade, of height to width; the use of colour, the treatment of metal work and sculpture—in short, all the things which must enter into the consideration of design in buildings that he will be called upon to produce.

In the preparation of drawings these things may be accepted as facts without much appreciation of their origin or intention, but it is not possible to discuss and describe them in writing without due analysis and research; analysis which must constitute them part of the mental outfit of the student, and must give him a clear perception of the lines upon which successful design must proceed. I think it will be agreed by those who have tested it that such critical analysis or description as I suggest has the effect of fixing the facts on the mind and memory of the student in the clearest and most lasting way. Drawing buildings in perspective is good, measuring and plotting them is better, but if both methods are used in conjunction with a carefully written description, very little more is possible. The details of architecture must be studied by drawing, but I submit that, as regards all the important factors that enter into the design of a building, a written record is the best means both for study and for impressing a subject on the memory of a student.

By the study of old work the student establishes for himself a standard of taste, he acquires a right sense of scale and proportion, he learns the proper uses of material and the limitations that material imposes on design, and, perhaps more important than all, is led to realise what factors and what qualities enter into the design of successful architecture.

St. Paul's Bridge.

The Lord Mayor, in reply to a suggestion that the work on St. Paul's Bridge should be begun as soon as possible for the benefit of the unemployed, has expressed his readiness to consider what can be done.

THE LONDON SOCIETY.

THE TOWER QUARTER OF LONDON.

A LECTURE on the Tower of London and its surroundings was delivered on November 12 to the members of the London Society by Mr. Charles H. Hopwood, F.S.A., in the lecture hall of the Royal Society of Arts.

Field-Marshal the Rt. Hon. Lord Methuen, Constable of the Tower, who presided, referring to additional work to the new bastion, which had been estimated to cost £20,000, acknowledged an indebtedness to the Board of Works for considerable improvements since 1864. He added that in all his experience he could not call to mind any building so worthy of old national association, or one that had been handed down so little damaged.

Mr. Hopwood, in the course of his lecture, outlined the history of the Tower from its earliest beginning when the Julius Cæsar or White Tower, now the Jewel Tower, formed the angle bastion of the Roman Wall. The Roman city stood on the north bank of the river and occupied two plateaus, of which the site now occupied by St. Paul's was one. In the names of the surrounding districts, such as Millwall, Blackwall, &c., might be traced the names of the walls which were built to confine the river to a more restricted area. The lecturer recalled that Fitz Stephen, writing in the time of Henry II about this Roman wall, said: "Ye have before heard that the Wall of this City was all round about furnished with Towers and Bulwarks, in due distance every one from another; and also that the Thames, with his ebbing and flowing on the South Side, had subverted the said Wall and Towers thereof. Wherefore King William for the defence of This City in place most dangerous and open to The Enemy, having taken down the bulwark in the East part of the Wall from the Thames, built this Tower, now called The White Tower, and it hath since at divers times been enlarged with other buildings adjoining."

A slide was shown of Wren's proposals to continue the open quaying of the river from the Tower to Blackfriars, which, if carried out as designed, would have been of more interest to the town-planner than to the antiquarian. But the only open quays of this scheme are at the Custom House and Fishmongers' Hall Wharf.

Many extracts from Pepys were recited and illustrated with valuable slides, recalling how on the night of the Great Fire the diarist, after being roused to note the great light in the heavens from the fire, with comfortable thoughts returned to bed; of how next day he hired him a barge and was engaged in saving his own and others' effects; and of how he listened to "a good sermon of Mr. Gifford's at our church"—St. Olaves—where he and his wife lie buried.

In 1800 there was much congestion in the Port of London, of which we of the present would have a definite appreciation, and as considerable loss was experienced from robbery, it was suggested that the Tower Moat should be converted into a dock and that warehouses should be built alongside. When the Duke of Wellington became Constable of the Tower he had the moat drained for sanitary reasons, the depth reduced and the surface gravelled, providing the present drill ground.

Photographs of the old Companies' halls were shown, including the Clothworkers' Hall in Mincing-lane, and that of the White Bakers, concerning which latter it was noted that the penalty at that time for giving short weight was pillory. The offices of the East India Company and its docks hard by called forth the comment that such de-centralisation as that achieved in Tilbury Dock was a mistaken policy. The Royal Steps at which Henry VIII fretfully awaited the arrival of Anne Boleyn from Greenwich, and by which Royalty descended when embarking from the Tower, gave opportunity for the plea that passenger traffic should be resumed along this portion of the river. In many of the slides the threatened church of St. Dunstan's, with its unique spire, stood out clearly "appealing to us."

A GENERAL MEETING of the Royal Institute of British Architects was held at 9, Conduit-street, W. 1, on Monday last, MR. WALTER CAVE (Vice-President) in the Chair. The minutes of the previous meeting were unanimously passed.

War Memorial Competition.

MR. ARTHUR KEEN (Hon. Secretary) announced the assessors' award in the competition of a war memorial to be erected on the premises of the Institute, which we give on p. 570.

The Library of the R.I.B.A.

MR. RUDOLF DIRCKS (R.I.B.A. Librarian) then read an exhaustive paper on the contents of the R.I.B.A. Library. Members of the Institute, he said, had every reason to be proud of their library, not only because it was the finest collection of books and drawings possessed by any architectural society, but also on account of the personal associations, past and present, connected with the formation of the collection. The *Journal* of the Institute (formerly the *Transactions*) now comprised sixty-eight volumes, and formed a valuable contribution to the architectural and archæological literature of the past eighty or ninety years—among the contributors were the names of practically every architectural author of distinction within the period in question. They also had eleven volumes (eight of text and three of illustrations of the "Dictionary of Architecture," one of the most useful books of reference to the student that had ever been published. The contents of the Library covered pretty well the chronology of architectural literature from the time of the publication of Vitruvius (1486) to the present day, contained in some 19,000 volumes, over 3,000 pamphlets, and many thousands of architectural drawings, photographs and engravings.

The earliest and most important books were published in Italy; some years later France caught the impetus of the Italian Renaissance, and England, for the most part, until the eighteenth century, provided only a faint echo of the publications of France and Italy. The most important authors of architectural books in the early days were the most important architects. There were scarcely any of the chief Italian architects of the Renaissance who did not write on architecture or seek some form of literary expression. As in all libraries, there were bibliographical gaps in the Institute Library, some serious, which it was hoped might be filled in time; but, taking the Library as a whole, its contents usually corresponded adequately to the bibliographical lists published in the various histories of architecture. The Library possessed perhaps the most complete collection in existence of the various editions of Vitruvius, who, as a writer, suggested an attitude and outlook towards the art of architecture which influenced all the early writers—Italian, French and English. The collection included copies of nearly all the first editions, many of them in their original bindings. A copy of the most important work of Leone Battista Alberti, his "Opus praestantissimum de Œlificatoriâ," in ten books, was in the Institute Library in various editions. Alberti was the first of a line of distinguished Italian architects who wrote on architecture, the most celebrated of his successors being Sebastian Serlio, Barozzi da Vignola, Vincenzo Scamozzi and Andrea Palladio, whose works in architecture and literature had a dominating influence on European architecture and architectural theory; the works of these authors, as well as many others of lesser prominence were adequately represented in the Institute Library. The collection included a copy of the very rare volume in the five orders, by Serlio, published in Venice in 1537, and a quarto edition of 1619, which contained a note in the handwriting of Sir James Thornhill.

The works of Vignola were represented in the Library by various Italian editions, which contain additional plates of doorways by Michel Angelo, while there were also various French editions. The Library possessed a copy of the first edition of Palladio's "Quattro Libri dell' Architettura," published in Venice in 1570, containing the autograph of Lord Burlington. The first edition of the books of Vicenzo Scamozzi, "Discorsi sopra l'Antichita di Roma," with 40 copperplate engravings by Battista Pittoni, and another published 35 years later, were on the Library shelves. In the Drummond Stewart collection of drawings they possessed original examples of the brilliant draughtsmanship of two members of the Galli Bibieni family—Ferdinand and Guiseppe. The 17 volumes of the works of Piranesi in the Library included the famous Carceri volume, and formed a complete set of his engravings; and there was also a letter from Piranesi to Robert Mylne. A recent gift to the Library by Mr. St. Clair Baddeley comprised 120 of the 139 original drawings made in Genoa by Peter Paul Rubens.

Architectural literature in France, after the invention of the printing press, followed much the same course as in Italy, but not until half a century later. The Library contained an extensive collection of the French authors from the time of De l'Orme to the present day, but the works of Jean Bullant, the first most typical architect of the French Renaissance, was not represented in the collection. Perhaps by mentioning that omission he might induce some lucky possessor to part with a copy. They had the 1648 edition of the complete works of De l'Orme, published at Rouen in 1648. They had the first edition of the first volume of Du Cerceau's "Les plus Excellents Bastiments de France," which provided an invaluable record of contemporary building in the 16th century, published in 1576, bound together with the 1607 edition of the second volume. The Institute possessed two copies of "Le Grand Marot" edition of the engravings of Jean Marot and his son Daniel, which had become very rare, one copy containing 220 plates and the other 156 plates. The work of the two brothers Jean and Antoine Le Pautre was represented, and the collection of the Cabinet du Roi series of engravings was one of the most valuable possessions; this was especially interesting to architects on account of the engravings of the building of Versailles, the Louvre and the Invalides, by Le Pautre, Israel de Silvestre, J. Marot and other great engravers of the time. The Library was well stocked with French works of the 19th century.

On turning to English architectural literature, the same richness and abundance were not found as was the case with Italy and France. It might be assumed that the Institute Library contained a representative collection of the books of English architectural authors, including the first and only edition of a very rare book, "The First and Chiefe Groundes of Architecture," by John Shute. There was also a copy of the 1725 edition of the only published work by Inigo Jones, called "The Most Notable Antiquity of Great Britain, vulgarly called Stone-Heng, on Salisbury Plain." In this remarkable treatise, Inigo Jones arrived at the conclusion that "this antient and stupendous pile must have been originally a Roman temple inscribed to Cielus, the senior of the heathen gods, and built after the Tuscan Order." The Library also contained a facsimile of the sketch book which Inigo Jones used in Italy during his second visit in 1614. They had numerous works, usually remarkable for their engravings, dealing in a picturesque fashion with the buildings of other countries, of which one of the most valuable was Jacques le Roy's "Castles and Mansions of Brabant," published in Amsterdam, with engravings by Wenceslaus Hollar. They also possessed the Interleaved Heirloom copy of the "Parentalia," which remained in the possession of Sir Christopher Wren's family until 1911, and a copy of the third edition of Sir Thomas Elyot's "The Boke named the Governour," which bore on the title-page the autographs of Sir Christopher Wren and his father. A few years ago the Society of Dilettanti presented to the Institute a set of plates engraved between 1820 and 1840 by members of the Second Ionian Mission sent out by the Society in 1811, together with many original drawings.

With regard to the works of contemporary authors, the Literature Standing Committee endeavour to keep the Library up-to-date, and in recent years a considerable collection of works on sculpture and the applied arts, heraldry and furniture had been formed, as well as scientific works dealing with construction. Apart from the publications of classic work, promoted by the Society of Dilettanti, the Library contained the original drawings of Robert Wood's Ruins of Palmyra (1753), a note-book in which James Stuart made notes and sketches during a tour in Italy, as well as 18 water-colour drawings of buildings in Greece. The Library possessed Reveley's MS. notes and criticisms on the architecture of Italy, whither he accompanied Sir Richard Worsley as draughtsman and architect. The diary of Sir Charles Barry in the Library contained notes and quick pencil sketches of a tour in the autumn of 1842 depicting the Rhine castles and details of buildings at Nuremburg, and other places. There were also various books of accounts in connection with Greenwich Hospital, the Horse Guards and Somerset House. The oldest of these, relating to Greenwich Hospital, included the contract prices for building the Hospital, and other documents associated with its erection in 1696. There were also three books of accounts, described by Mr. Wyatt Papworth as "Manuscript Ledgers," connected with the building of the Horse Guards (begun in 1750) and Somerset House (1776), which were instructive as to the cause of erection of these buildings, the method of carrying on the works, the prices paid for works done by "measure and value," and the names of the tradesmen employed, covering the period from 1776 to 1795.

The paper was illustrated by several lantern slides showing title-pages, drawings, &c., from some of the more interesting works in the collection.

Discussion.

DR. A. G. COWLEY (Librarian of the Bodleian Library, Oxford), in moving a vote of thanks to the author, congratulated the Institute on having such a library and such an excellent Librarian.

SIR CHARLES HERCULES READ (President, Society of Antiquaries and Keeper of British and Mediæval Antiquities and Ethnography at the British Museum) in seconding the vote of thanks, said that during the past two years he had been trying to turn a building that was intended for a library into a museum. The gallery was amply provided with light, and columns (3 ft. square) which he did not want, and a great many other things which were of no use for a museum gallery, but which would be admirable for a library. The requirements for a museum gallery were entirely different from the requirements for a library, chiefly because in a library the books could be carried to the light for perusal, whereas in a museum the objects had to be kept in the one position. In the designing of museums he thought that sufficient consideration had not been given in this country to the effect on the contents of the amount of light, the direction of the light, the quality of the light and the amount of shadow. He expressed the opinion that it would be well worth while for students of architecture to study the books of fine woodcuts in which the Italian artists illus-

trated the title-pages in the most beautiful style of the time of the middle Renaissance.

MR. WILLIAM WOODWARD said he hoped the funds of the Institute would be sufficient to permit of the publication of a catalogue of the contents of the library.

MR. H. H. STATHAM said it was important that more adequate accommodation should be provided for the books, and he would like to know whether the collection was sufficiently safe from fire. It was a matter for the immediate consideration of the Council that the accommodation should be extended, and that the books should be placed in a fire-resisting building.

MR. C. F. A. VOYSEY said that in listening to the paper he could not get away from the idea that the account of the library was also an account of the badness of modern architecture. Architecture to-day was so terrible, and the reason for it was that they had such excellent librarians collecting wonderful material that architects had no business with at all. He really thought that the best architecture the world had ever seen had grown out of the complete understanding of modern requirements and conditions. He was quite sure that he was alone in his opinions, but he thought the more architects were interested in the past the less they understood and appreciated the present.

MR. H. M. FLETCHER said he thought it had been borne upon the members of the Literature Standing Committee that the housing of the library was inadequate.

MR. W. H. WARD said it would be a most valuable result of the paper if the Council were brought to take a serious interest in the Library and its accommodation and its proper preservation from fire.

MR. ED. WARREN said he took a different view from Mr. Voysey of the use of the Library, and trusted it would always be full of students.

MAJOR H. CORLETTE said that the Library was certainly a great asset, but the real literature of architecture was in buildings themselves.

MR. H. JONES (Libraries Association) congratulated the Institute on the possession of a Library, the value of which he had not previously realised.

The CHAIRMAN said the Council was considering the accommodation and safety of the Library.

MR. DIRCKS, in a brief reply, said for years past the accommodation for books and drawings had been overcrowded.

NOTES ON EXHIBITIONS.

Royal Institute of Oil Painters.

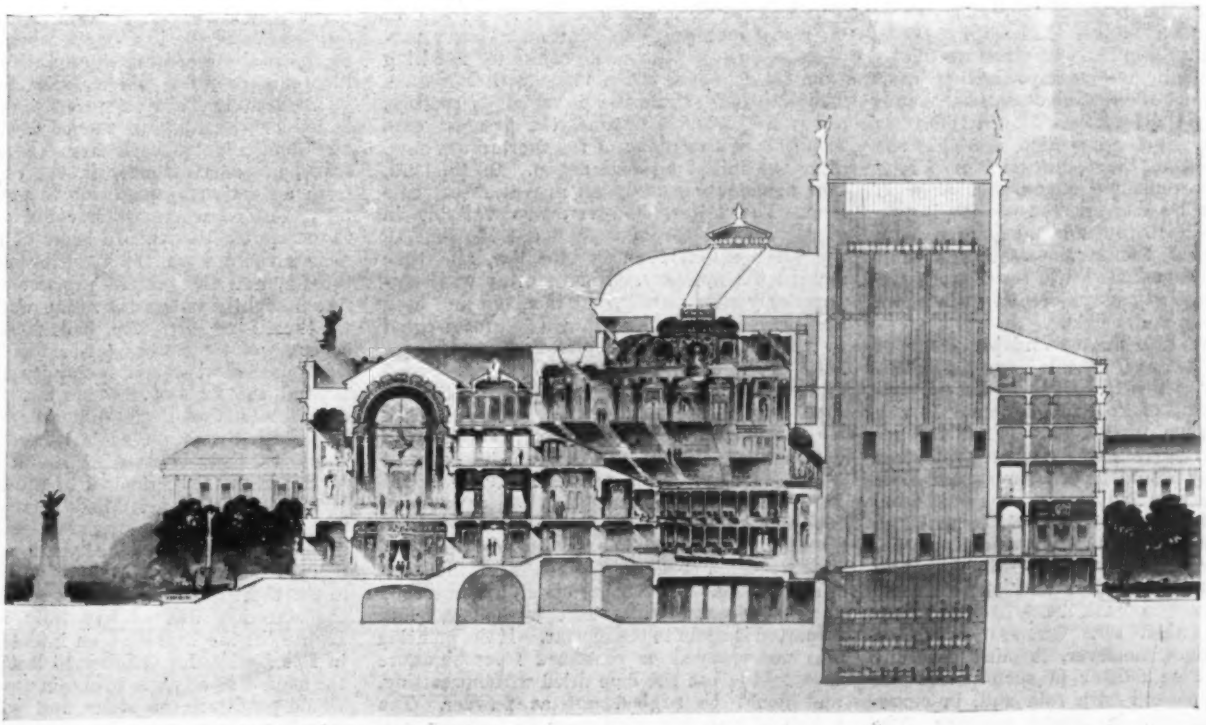
FOR those to whom pictures should supply definite charm of colour there will be some genuine pleasure to be gained at the R.O.I. The large gallery is well hung, and contains a good deal which seems to have been worth doing. The place of honour is occupied by Sir John Lavery's "Mother and Child" (306), a charming low-toned picture, on which the whole area of canvas leads up and gives value to the comely face: though so small a space is occupied by the head of the mother, there is no part of the picture which can be spared. The quiet, easy charm of the whole with its harmonious colouring promises enduring delight. Amongst other portraits are a finely-painted head of Captain T. Gekine, by Kayunori Ishobaski, R.O.I., and a striking three-quarter length of Edward Archer, Esq., by R. G. Eves, a portrait (201) by St. George Hare; portrait of a Veteran (338), by George J. Coates; Lieut.-General Sir Ed. Bulfin, by John St. Helier Lander; a curiously illumined Miss Glasby (177), by Fred Geist; an able rendering of Her Excellency Mme. Sze (187), by Dorothea Laudau da Fano; a telling portrait of C. T. H. Leslie, Esq., by R. G. Eves; a fine, richly-toned panel of Ali ben Amor ben M'rad, by Glyn Philpot; and a pleasantly-toned picture of Miss Maud Woodworth, by John St. Helier Lander. There are quite a number of conspicuously successful pictures of light and colour, such as the charmingly decorative small picture of "Twilight—Marseilles" (227), by Terrick Williams, in which one notes a subtle interweaving of yellows and blues. The same artist's "Golden Morning" (299) would be a delightful note of colour on one's wall. "Wharfeside" (289), by H. Davis Richter, shows how a hive of industry may be presented as a glow of rich colour decoration. In "Winter's Message—Belgium" (302) we have again that pleasant tone of delicate mellow colour which the artist, Frank Spenlowe-Spenlowe, seldom denies us. "The Golden Autumn" (308) is a passage of dusky gold which Moffat Lindner has done in a perfect decorative fashion, and which ought to be realised in glass, inlaid wood and perhaps in mosaic. Why do not things of this kind get into the hands of our craftsmen to render for us in lasting materials? We cannot even note all that interests us in an exhibition which seems quite above the average. The powerful "Quarry" (329), by F. W. S. Le Maistre; "Cader Idris" (327), by Leonard Richmond; the fine "Nocturne" (202) by Frank Spenlowe-Spenlowe; the charming picture of "Winter Palace—Peking" (244), by P. A. Stayner; an impressive picture of "Lancaster" (252), by Alfonso Toft; "San Giorgio" (96), by Graham Petrie; "Sark" (5), by E. Reginald Frampton, are only some amongst the unusual number of noticeable works. Reverting again to the suggestiveness of pictures for permanent decorative uses, we cannot help thinking that such subjects as "The Road to Barmouth," by Otway McCannell (44) should be impounded by architects or decorators for translation in coloured glazing. Of remarkable and even brilliant work we should note the "Tapage Nocturne" (143), by Walter Bayes, and what looks like a very rapid sketch in oils, "The Harlech Castle" (135), by Leonard Richmond.

The French Gallery.

The late Van Ingen was amongst the most gifted of modern Dutch painters, and it is a pleasure to have so good a collection of his works as are now on view at the French Gallery in Pall Mall. He possessed a rare intuitive gift for the production of those landscapes in which cattle occupy so perfect a place and relation. There is an individuality of treatment in the painter's work which is doubtless to be accounted for, in part, to his retired life and absorption not only in one theme but one place, for it is said he was never more than one day away from home. In realisation of effective lighting he hardly ever failed, though in his colour we find a somewhat monotonous repetition of cold greens. Some charming small landscapes and pencil drawings are included in the exhibition, which is the first of his collected works to be seen here. These all make delightful pictures.

Proposed New Hospital at Bath.

A scheme is on foot for the purchase of a site at Combe Park for the erection of a hospital for paying patients. It is proposed that the hospital shall contain 100 beds in small wards and private rooms, and a maternity home with 40 beds. The total cost is estimated at £150,000, and it is intended eventually to transfer the Royal United Hospital to the site.



Students' Work, School of Architecture, Liverpool University.

Design for a National Theatre: Section. By MR. W. ELSWORTH. (*See* p. 576).

THE GLASGOW INSTITUTE OF ARCHITECTS.

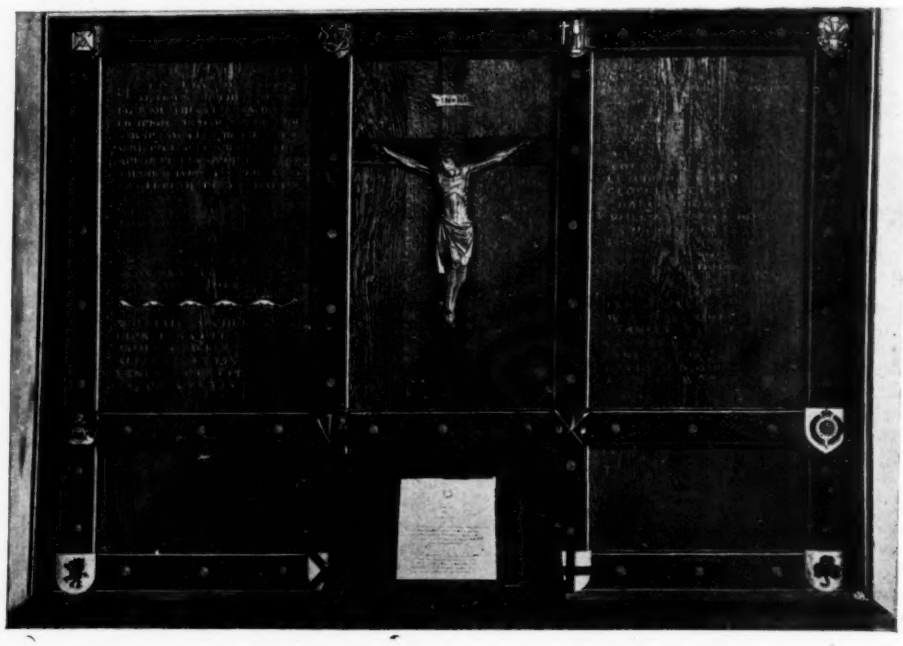
Preservation of Ancient Buildings.

MR. J. WILSON PATERSON, M.B.E., A.R.I.B.A., of H.M. Office of Works, lectured on "The Preservation of Ancient Monuments and Historic Buildings" to the members of the Glasgow Institute of Architects at a recent meeting in the Institute's rooms. Mr. Paterson explained the functions of the various official departments connected with ancient buildings and proceeded to say that the preservation of ancient monuments was not a case of mere pointing. The problems encountered were many and various, and called for a considerable amount of skill and ingenuity. This was evident from the various natures of the monuments themselves. These causes might be classed under three heads: namely, intentional damage, structural weakness, and effect of weather and time—and for each a different remedy was necessary.

The lecturer took the chambered mound of Maeshowe in the Orkneys as his first illustration. The central chamber was entered by a passage 54 ft. long by 4 ft. 4 in. high, while on the other three sides were small burial chambers, the entrances to which were sealed with large stones. The chamber was excavated in 1861, and at that date the roof had fallen in. At a later period a brick vault had been built over the opening and the top of the mound restored. The waterproofing of this vault in asphalte was carried out by the Office of Works, and provision was made for ventilation, but the impervious nature of the stone of which the chamber was built caused a great deal of condensation in damp and misty weather. The stone, however, did not appear to be suffering from damp, while on the outer banks encircling the mound the turf had been made good where necessary and was well pinned down with mesh wire netting.

The lecturer also referred to Affleck Castle, which he described as illustrating what he would call a simple pointing job. The building had suffered from the effects of time and weather, and the ravages of ivy roots, one of the most destructive agents to old buildings; although in places ivy was beautiful it should not be tolerated on valuable works. Once the surface of the mortar was broken there became a ledge for water to lodge on, the rain was driven in and disintegration commenced; gradually dust and vegetation settled in the crevices, and eventually the wall was weakened. In the case of Affleck Castle an attempt had been made to point the building, but the white cement pointing was, to say the least, inartistic, and was found to be only a skin when trial holes were cut through, no attempt having been made to clean out the dirt or decayed moisture or to grout up the fractures. Even this class of pointing might for a period diminish the rate of progress of the disintegration so long as the surface remained sound, but as soon as the surface became cracked—which it was very likely to do through being of such little body—or should the stone weather behind it, the rain was conducted into the heart of the wall and disintegration proceeded even more rapidly and was undetected.

Investigation into the use and properties of lime had to a large extent been neglected, and all energy in this respect had been devoted to the perfecting of Portland cement. It was hoped that when further results of the researches by the Research Department were completed they would be of interest and some practical use, especially as it was becoming more widely known that Portland cement had a deleterious action on stone. Cement pointing was to be avoided because of its colour and its hard inelastic nature, and therefore its greater tendency to crack away from the sides of the joint when set. On wall tops and horizontal ledges, however, it must generally be used, as lime mortar in such places was liable to get soaked with rain and, in consequence, broke up in frosty weather. The knowledge gained from the examination of these old mortars impressed the necessity for the use of clear, sharp, angular sand, and the grading of coarse sand with the fine. The Department made a special point of the sand, and of the thorough washing of the sand where there was the slightest suspicion of the presence of any loamy or clayey matter. The ratio of sand and lime would depend on the nature of the sand, and a coarser grain sand required more lime. The only safe way was by experimental tests with the actual sand. Generally speaking, with the class of sand in use by the Ancient Monuments and Historic Buildings Branch the amount of lime would be high compared with ordinary building operations, and varied, say, from twice the quantity of sand to equal quantities of both. The high percentage of lime had been found to be really more economical than a lower percentage, owing to the waste of mortar resulting from its shortness when made with less lime. The gauging should be in small quantities, about a pailful at a time, the greatest care being taken that none of the mortar was used after the initial set had begun. In England, blue lias lime was used, and in Wales Aberthaw lime. The latter, however, was variable in quality, and the rain washed out the lime to a greater extent than in blue lias, and thus stained the masonry. Lime mortar was comparatively slow setting, but if mixed and used as described it would attain a hardness equal to cement, and appeared to become harder with time. In a few months after the joint had been pointed (and assuming it to have been done on a cement backing or tamping), if a joint was cut out it was often difficult to detect where the lime finished and the cement began. Mortar used for pointing walls of hard impervious stone (such as whinstone) required spraying with water in dry sunny weather. That was due to the fact that the lime required a certain amount of moisture while setting, and the porous stones absorbed the water when joints were washed out and imparted it again to the mortar. If the pointing was not sprayed or protected from exposure to a baking sun the lime dried without setting, and could be rubbed out as powder. The action of frost depended upon its severity, and the greenness of the pointing and its dampness Severe frost following a period of driving rain would affect pointing that had been executed for some considerable time. The effect of even severe frost, however, was only to strip the face of the pointing in most cases to a depth of a quarter of an inch; and the soft mortar behind appeared to set again after the cessation of frost. The adhesion between Arden lime mortar and the stone was excellent.



War Memorial at St, Sampson's Church, Cricklade.
By MR. H. CHADWICK WINDLEY, M.A.

[This memorial consists of oak panelling with crucifix on the centre panel and a desk below on which it is ultimately intended to place a Roll of Honour engrossed on vellum bound in oak. The memorial has been placed in a recess in the tower wall.]

Pointing on this class of work had not only to be sound and permanent but it must not be conspicuous or out of harmony with its setting. One could not help regretting that so many architects used cement mortar blacked with soot or ashes for pointing old work, and the result was that the spectator—instead of having his attention drawn to the colour and beauty of the original work—saw an objectionable network of black lines. It had been found that the most inconspicuous method of pointing was to use a good coloured sand nicely graded for the size of the joint, and, when the mortar was partially set, to wash off with a brush the lime skin or fatty matter, and throw up the grit. That had a most pleasing effect, but it added considerably to the cost. The mortar was kept slightly back from the face of the stone, not smeared over it, the object, apart from æsthetic reasons, being to prevent ledges being formed where water could collect when the stone weathered. In some of the Department's early work the pointing was recessed too far, and the present practice was only to recess slightly unless the stone was one which weathered rapidly. He had personally seen on some of their work (after five years) that the stone had weathered best quite one-sixteenth beyond the face of the mortar. Such stone decay was the most difficult problem the Department was up against, and one which it had tackled almost from its inception. Dr. A. P. Laurie (the Principal of the Heriot-Watt College at Edinburgh) had been engaged by the Department on research work in this connection for a number of years, and although he had discovered a number of facts leading in the right direction it could not be said that the question was as yet fully solved. Dr Laurie (in the course of an interesting article in *The Builder* for October 15 last) stated that the main difficulty was to obtain a solution which would penetrate the stone, and when penetration had occurred would cement the particles throughout the whole depth of the penetration.

Leading Contents.

	PAGE
SOCIALISM AND THE BUILDING INDUSTRY	565
THE THREATENED CITY CHURCHES	568
ARCHITECTURE AND TOWN PLANNING....	570
THE STUDY OF OLD BUILDINGS.....	571
THE LONDON SOCIETY	572
R.I.B.A.	572
NOTES ON EXHIBITIONS	573
THE GLASGOW INSTITUTE OF ARCHITECTS	574
ARCHITECTURAL EDUCATION	578
THE TOWN-PLANNING INSTITUTE.....	583
THE NATIONAL HOUSING AND TOWN PLANNING COUNCIL	584
THE ONLY WAY.—VI.....	585
RESEARCHES ON TIMBER	585
THE INDUSTRIAL COUNCIL FOR THE BUILDING INDUSTRY.....	586

ILLUSTRATIONS.

Chapel at Guildford, Western Australia.

The chapel is situated in the school grounds at Guildford, eight miles from Perth. The building was commenced early in 1912 and completed in 1914. It is built of Donnybrook stone, a sandstone quarried in the south-west of the State some 200 miles from Guildford. The roofing is in red, sand-faced, hand-made tiles, which were sent out from this country. The paving, white and black marble, was also sent from here. The internal fittings are of English oak, and were made by Messrs. Bridgeman & Sons, of Lichfield. The stained glass for the east window and the decoration to the reredos were executed by Mr. J. C. Bewsey, of 76, Abbey-road, N.W. In the latter, on the one side are depicted scenes from the life of St. George, and on the other scenes from the life of Our Lady, the chapel being dedicated to SS. Mary and George. The builders were Messrs. J. J. Jarvis & Sons, of London. The metal work and electric fittings and lectern (which is of metal) were made by Messrs. W. B. Reynolds, Ltd., of 7b, Old Town, Clapham. The lectern carries the chapel Bible which was presented to the school by His Majesty the King.

The total cost of the whole work was approximately £50,000, which was borne by the donor, Mr. Cecil Oliverson. The architect is Mr. Walter Tapper, F.R.I.B.A., Melina-place, St. John's Wood, N.W.

Treatment of a Railway Arch.

This is a small pocket arch forming an addition to 174, Queen Victoria-street, E.C. The vault ribs are of alabaster with Arni Alto blocks with black and statuary marble connecting them, the narrow space between being filled in with gold mosaic in which marble bull's-eyes of red, white and blue are introduced at intervals; this marble work has been carried out by the Art Pavement Co. The remaining surface of the vault is of vitreous mosaic of a heliotrope tint with margins of cream and bands of black and white filled in with gold. Bas-reliefs (by Mr. Henry Poole, A.R.A.) are introduced in the mosaic as illustrations to some of the electro and gilded quotations on the frieze. Each bay is enriched by circles of modelled plaster in blue and gold by Mr. A. T. Bradford, of Borough-road, the centre portion being of gold mosaic arranged fan-wise, the centre bay having a black-and-white star. Mr. Jesse Rust, of Battersea, is responsible for this mosaic. The cornice with carved blocks inserted (also by Mr. Bradford) and the frieze (with lapis lazuli and brown onyx inlays) is of pavanazzo, the pilasters of Greek cipollino with carved caps (by Mr. Bradford) of statuary marble, bases of various tints, plinth of cork red and skirting of Napoleon, while the filling is of light sienna with narrow bands of Swiss cipollino. Mirrors with oak frames, wax polished, form the panels between pilasters, and others are also placed in positions where indicated. The small feature in the alcove is carried out in marble of various tints, and gold mosaic panels with black-and-white marble borders are formed in the soffit and the caps, all varying, and carved by Mr. Nathaniel Hitch, of Kennington, who also carved the oak bracket supporting the clock. Mirrors in lead glazing fixed in bronze frames as a mock window have been carried out by Messrs. Weldon & Co., of Croydon. The long panel at the frieze is in copper, onyx, marbles of various colours and enamels, corresponding with one previously fixed, and these, together with another subject placed over the fireplace, are the work of Mr. Frederick Callcott, of Golders Green. Decorative panels of a similar description will be introduced in positions shown, and the two at either end of the vault will be surrounded by oak gilded frames and have bronze imps placed on each side representing Drama, Art, Literature and Music, and these are in preparation by Mr. Henry Poole, A.R.A.

The builders' work has been carried out by Messrs T. Rider & Sons, of Union-street, S.E., and the electrical installation by Messrs. Marryat & Place, of Hatton Garden, E.C.; Messrs. Fenning & Co., of Hammersmith, have carried out the marble and mosaic work to the three openings and the feature in the alcove; and Messrs. Farmer & Brindley, of Westminster, the remaining marble work. Mr. H. Fuller-Clark, of Anerley, is the architect.

Potter's Bar War Memorial.

This memorial stands on the corner of where the Great North Road to Hatfield meets the road to Northaw. On a mound covered with berberry bushes, 3 ft. 6 in. from the monument, is a Yorkstone path all round, so that those who wish can stand and read the names that are inscribed on three sides. The whole is of Portland stone up to the black marble abacus and the cross is bronze gilded. Mr. C. F. A. Voysey is the architect.

MEETINGS.

MONDAY, *November* 22.

Architectural Association.—Major H. Barnes, M.P., on "Architecture in the New World." At 34–35, Bedford-square, W.C.1. 7 p.m. Also exhibition of drawings by the late Alick Horsnell.

TUESDAY, *November* 23.

Liverpool Architectural Society.—Prof. Reilly on "Character in Modern Architecture." At 13, Harrington-street, Liverpool. 6 p.m.

L.C.C. School of Arts and Crafts.—Mr. W. H. Ansell on "Fittings and Fitments." At Southampton-row. 5.30 p.m.

WEDNESDAY, *November* 22.

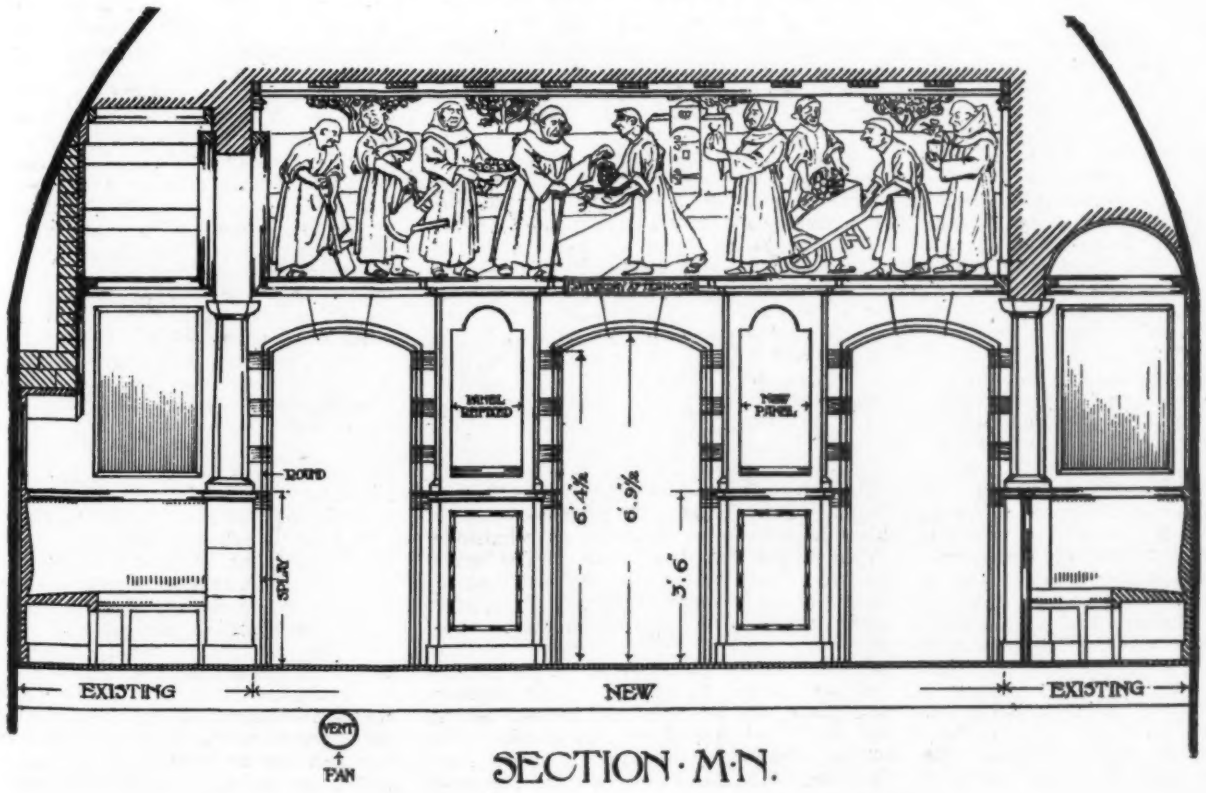
British Museum Lectures on Ancient Architecture.—Sir Banister Fletcher, F.R.I.B.A., on "The Parthenon." At British Museum. 4.30 p.m.

THURSDAY, *November* 25.

Builders' Benevolent Institution.—Annual dinner. At Victoria Hotel, Charing Cross. 6.30 p.m.

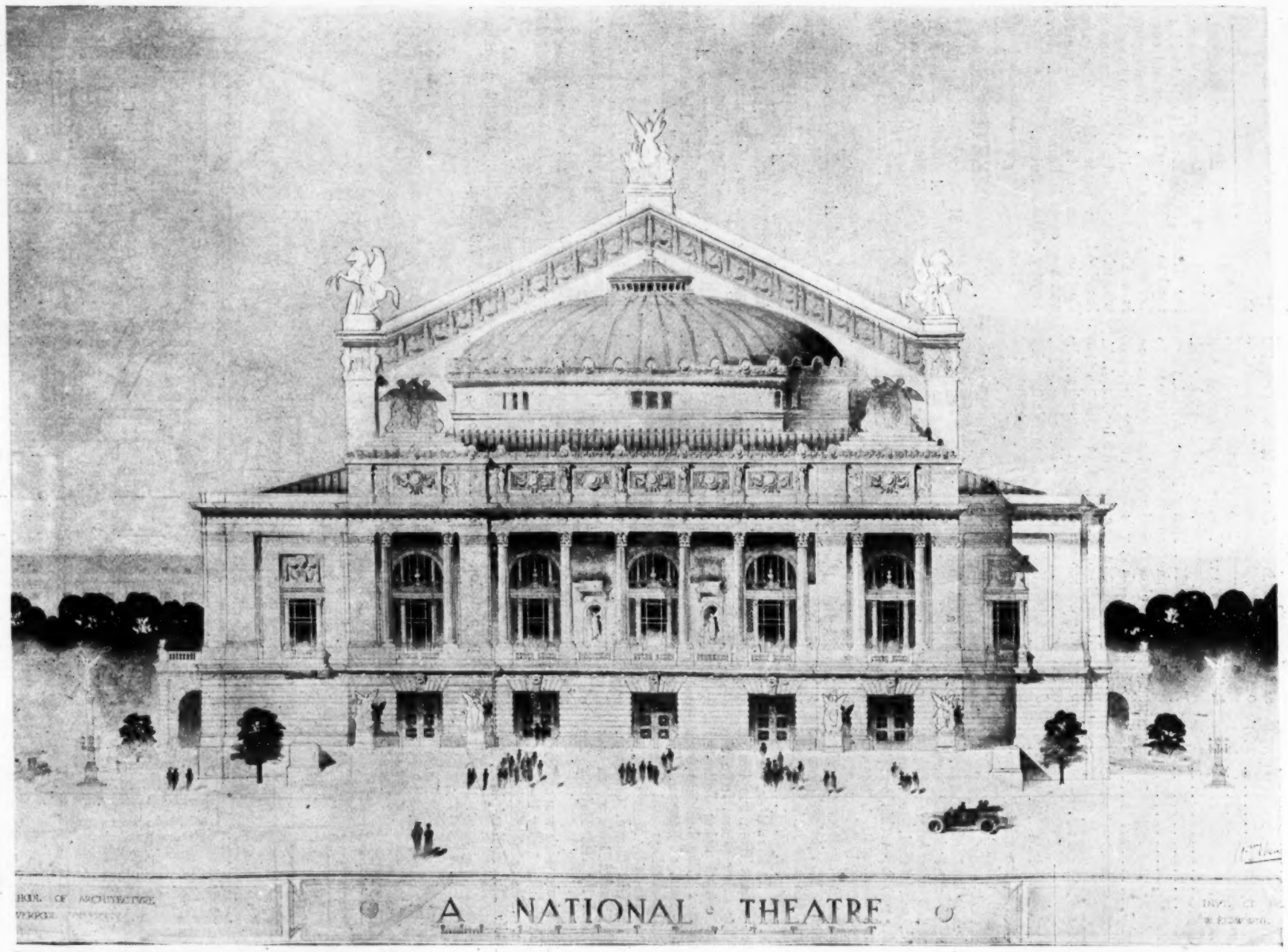
Institution of Municipal and County Engineers.—Visit to Margam. Meet at Municipal Buildings, Aberavon. 11 a.m.

Concrete Institute.—Presidential address by Mr. E. F. Etchells. At 296, Vauxhall Bridge-road. 7.30 p.m.



SECTION · M·N.

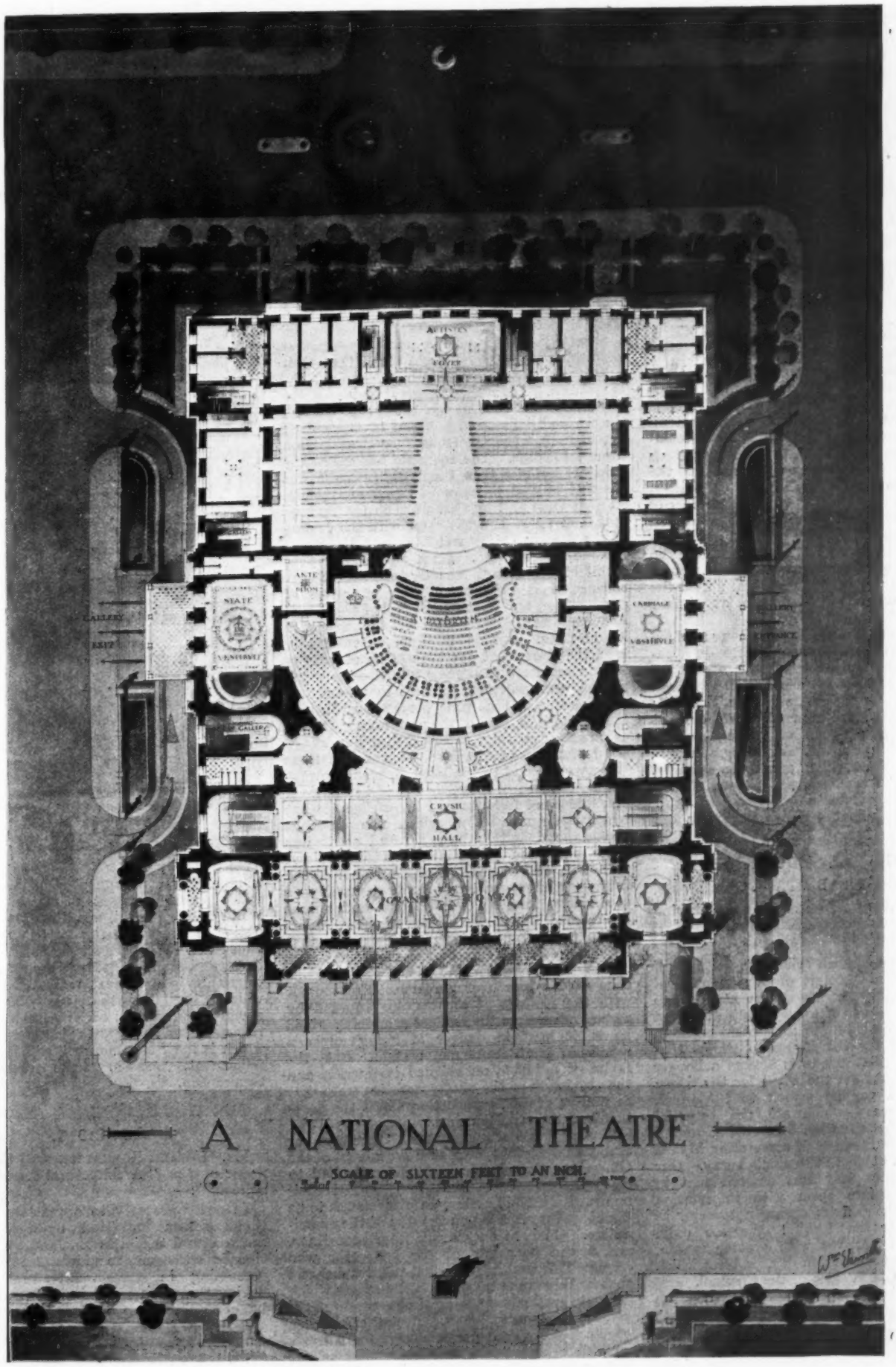
Treatment of a Railway Arch. MR. H. FULLER-CLARK, Architect.



Students' Work. School of Architecture, Liverpool University.

Design for a National Theatre: By MR. W. ELSWORTH.

[We give this week one of the designs in a National Theatre Competition which was held among third year students of the Liverpool School of Architecture towards the end of last session, and in a subsequent issue we hope to illustrate some of the other designs. The competition, which took a month to carry out, was one of the best the Liverpool School have held, and with the revival of interest in the National Shakespeare Memorial Theatre and the possibility of a public competition, these designs are of interest.]



Students' Work, School of Architecture, Liverpool University.

Design for a National Theatre (Plan): By MR. W. ELSWORTH. (*See page* 576.)

best the Liverpool School have held, and with the revival of interest in the National Shakespeare Memorial Theatre and the possibility of a public competition, these designs are of interest.]

ARCHITECTURAL EDUCATION.

ANGLO-FRENCH JOINT CONFERENCE IN PARIS.

A DELEGATION consisting of the following members of the Royal Institute of British Architects and representatives of the schools of architecture in Great Britain, Messrs. John W. Simpson, President R.I.B.A., Membre Correspondent de l'Institut de France; Paul Waterhouse, M.A., F.S.A., F.R.I.B.A. (Chairman), and W. G. Newton, M.A., A.R.I.B.A., Hon. Secretary, Board of Architectural Education; Mr. H. M. Robertson, S.A.D.G., Principal of the Architectural Association School of Architecture; Prof. C. H. Reilly, M.A., F.R.I.B.A., Director of the Liverpool University School of Architecture; Prof. Patrick Abercrombie, Professor of Civic Design at the University of Liverpool; Mr. Arthur Davis, F.R.I.B.A., founder of the London Ateliers; Mr. Alexander N. Paterson, M.A., A.R.S.A., F.R.I.B.A., President, Institute of Scottish Architects; and Lieut.-Col. H. P. Cart de Lafontaine, O.B.E., A.R.I.B.A., Membre Correspondent, S.A.D.G., Hon. Sec., British Conference Committee, proceeded to Paris, on the 11th inst., on the invitation of the Société des Architects Diplomés, to attend a joint conference on the problem of architectural education. The first meeting took place in the Salle de Construction at the Ecole des Beaux-Arts, at 2 p.m., on Friday, November 12. Monsieur Paul Léon, Director of the National School of the Fine Arts, welcomed the British delegates, and expressed his appreciation of the initiative of the R.I.B.A. and the S.A.D.G. in organising the meeting and resuming the friendly relations which had united the artists of England and France at similar meetings in 1913 and 1914.

The following papers were then read:—Monsieur Jules Godefroy, architecte du Gouvernement, and member of the Board of Education of the Beaux-Arts National School, on "The Training of the Architect in France"; Monsieur Arnaud, Professor of Construction at the Ecole des Beaux-Arts, on "The Constructional and Scientific Training Programme of the Ecole des Beaux-Arts"; and Mr. John W. Simpson on "The Relations between French and British Architects."

We hope to give the above papers in our next issue.

ARCHITECTURAL EDUCATION IN GREAT BRITAIN.

MR. PAUL WATERHOUSE read the following paper on "Architectural Education in Great Britain":—

I leave to my English colleagues the task of giving a detailed account of our educational system, reserving for myself an attempt to portray in the course of a few minutes the past history which has led up to our present position, and the hopes for the future to which that position gives rise. There is always a danger that one may not see the wood for the trees; that is why I confine myself to the wood, leaving the trees—which are the essential elements of the situation—to others, and I am aware of the rashness of attempting to deal with so large a subject in so small a way. Our French colleagues may rest assured that in thus coming before them with information about our English affairs we are not posing as instructors. Heaven forbid! We are only, like them but perhaps with greater reason, searchers after the solution of a problem which concerns us on both sides of the Channel.

Here in brief is our history. Up to the middle of the nineteenth century pupilage was the only way to the profession. Armed with his father's money, the would-be architect tapped, so to speak, at the door of one of the great ones (would that they always had been great ones!), and when once the young man was admitted, the process was simply one of "wait and see." In any case the master got his fee—in most cases, or at least in many, the pupil got his brass plate and was recognised as a professional man. Far be it from me to say that pupilage had not its good points. It certainly had them, but it had also its defects. We owe it to the Royal Institute of British Architects that these defects—these dangers—were not overlooked. The Council saw that even if the door to the profession was not an absolutely open door it was a door without a key; and the first-fruits of their efforts to provide a key were, so to speak, the now almost forgotten Voluntary Examinations which besides merely passing (and ploughing), awarded "distinction" to those who reached a certain standard. In spite of the natural disgust which mankind feels towards examinations, the "Voluntary" was a moderate success; and though its "plough" was no bar to the Associateship (if indeed people were ploughed) it is at least a fact that those who in the year '63 successfully underwent the test were the first English architects who could claim that their entrance into the profession had some qualifying stamp. After all, the great value of the Voluntary was that it was the "thin edge of the wedge." The wedge began to make itself felt in 1882, when the Obligatory Examination came into force. The Institute had taken the step of deciding that the "Obligatory" was the sole way of entrance to the Associateship. At that time and by that decision the die was cast, and we know what came with the casting of the die. Architectural education thereupon became systematised. I am quite aware that architectural classes already existed in our colleges, that there were even professors of architecture, and that the School of the Royal Academy had already rejoiced the hearts of its creators. But it is true, incontestably true, that from that day the system of instruction in architecture became unified—too much unified, some will say; but are they fair?

What was at that time the obvious duty of the Institute as head of the profession? It was, as no one dare deny, to establish a standard—not a standard of excellence—for examinations can never ascend to the High Heaven of Art—but a standard of insufficiency, of ignorance if you like (for ignorance and knowledge are but relative terms), below which the entrance should be definitely barred. And so it was that education became standardised and stabilised, and passed out of the hands of the former architect-masters. Pupilage, as anyone could have foreseen, was doomed and almost dead; and it is to the honour of those leaders of the profession who thus lost their gains that they were the leaders of the movement that destroyed the system. Let us at the same time shed a tear over pupilage. The contact with the realities of architecture afforded by a good office gave the student something which he is at least in danger of losing under a scholastic and academic system. But the faults of pupilage outweighed its merits, and the architects of the past generation were wise as well as generous when they killed the goose that laid those golden eggs.

A word about crammers. Crammers or coaches sprang into birth with the advent of the Obligatory Examination and naturally had to meet the suggestion that they stuffed their pupils with tabloid architecture which was to be discharged undigested on the day of the examination. One can only speak from experience, and I can only say of the instructor who crammed me that he was a first-rate teacher and that he helped me to collect certain facts which have always been of use or of pleasure to me in my career as an architect. In any case, when people speak of crammers as an evil I am always inclined to answer that noxious crammers are, if they exist and prosper, a direct result of a bad examination system. If our examination, with its written and oral tests, cannot distinguish crammed knowledge from honest work, the fault lies with the examiners.

To return to history. Schools were started, schools flourished and schools grew. This establishment and growth prospered even more when the old Obligatory Examination gave way to our present three-fold system of progressive tests. This, as you know, took place in 1887, and there is no need for me to enter here into a description of those three examinations, the Preliminary, the Intermediate and the Final. The particulars which will be given by my English colleagues of the curriculum in the schools will make this plain and clear.

What I must allude to is the advent of the system of recognition. By a happy accident of language the French word for recognition means also gratitude, and if our French friends are led into thinking that by recognition we imply gratitude to the schools they will not be far wrong. It was in gratitude to these schools, which had reached a certain level of teaching, that the Institute granted them the privilege of exempting their pupils from our Intermediate Examination. The Institute, as we know, holds the reins as regards this exemption, retaining the power, through its external examiners, of withholding exemption from any particular pupils—or indeed from the whole school if the standard is not maintained. And as we know, there has arisen in quite recent days a most interesting development of the system of recognition—the granting to certain schools of advanced curriculum exemption under well-defined conditions from the Final Examination itself, or at least from a very large part of it.

I hope that from what I have said our French friends will have gathered some idea of the relationship between our Board of Education and the schools of the country. It is a relationship of confidence, of friendship, of encouragement and of control. I hope also that they will have gathered some notion of our hopes for the future—a future which is sure to be full of developments. France will assuredly share with us our desire for an energetic growth fostered under a rule of liberty, always spreading but always under the limits of a reasonable control. The control of this central power of ours can never be other than kindly, for it is the control of a mother hand, and the mother is proud of her children. She is proud of their birth, proud of their growth, and even proud of their sometimes clamorous cries for greater freedom. Is there not something significant in the change of title which our Board once underwent? The Board of Examiners became, you know, the Board of Architectural Education. The change certainly synchronised with a change of personnel which was enough to justify the alteration of appellation; but it has a wider significance. It proclaims to all the world what, after all, we all knew—that examination is only a humble tool in the hand of education. What we all seek after is the well-instructed architect. He is the aim. The way to get him is by Education, and Examination—which in itself is worth nothing—becomes as the gauge of Education, as its stimulus, its encouragement and its test, a thing of value, a thing which is itself capable of infinite improvement, refinement, and—in some cases—of wise suppression.

THE ARCHITECTURAL ASSOCIATION SCHOOLS.

MR. HOWARD ROBERTSON read the following paper on the "Architectural Association Day Schools":—

In order properly to appreciate the educational scheme adopted by any particular architectural school in England at the present time, it is necessary to understand the conditions pertaining in the architectural profession during the years preceding the war. It must be confessed that architectural education is still in a comparatively elementary stage, and this results largely from the fact that up till a few years ago architectural schooling as such was practically non-existent, and when it did exist it was not based on any organised plan but depended largely on the personality of the school principals and their staffs. In the place of the schools was found the system of pupilage, where the would-be student was articled to an architectural practitioner for a term of years, and sought his education at the hands of one

or two architects who gave more or less instruction according to individual circumstances. Due to this system, the architectural training received varied from good to bad, there being no criterion or standard other than individual taste, and no tradition beyond that of the particular office which received the pupils. The element of competition was absent, and, consequently, there was no incentive or necessity for giving each pupil the best possible training for his money.

The Architectural Association Schools have developed since 1901, during the period when pupilage was in vogue and during the present epoch when the system is practically abandoned. It has, therefore, had to cope with the different conditions, and this has resulted in changes of method and a rather startling present-day growth. In addition to basic changes taking place in the system by which a student prepares for his ultimate professional work, there have been parallel developments as regards the professional societies and their Board of Architectural Education. These have been largely due to the strongly marked desire for a proper school training which would bring with it certificates of competency replacing the graded examinations in vogue during the "pupilage" period. The Architectural Association Schools have provided for this requirement by extending their course of studies so as to ensure a sound theoretical training, aiming at a standard rather higher than would be strictly necessary for the passing of the professional examinations. To secure this result, and so fit its students to become trained architects and potential wage-earners, is the aim of the School during its graduate and post-graduate courses, which, if fully followed, occupy a period of five school years.

It is realised that a good general education is a first requirement, and the School entrance examination is of such a standard as to ensure that the students have this, and that consequently they are entitled to exemption from the preliminary examination of the Board of Architectural Education. After admission to the School, the students enter the graduate course of three years, the first two of which are in the elementary and the third year in the advanced School. Successful fulfilment of the three years' tests entitles students to exemption from the "Intermediate Examinations," and the diploma granted at the termination of the further two years of post-graduate work brings with it exemption from the Final Examination of the Board of Architectural Education.

The work carried out in each of the five years has been systematized so as to be carefully graduated and to arrange to give the best possible results for the average students, and not with the idea of forcing and obtaining startling results from a favoured few. It is possible briefly to capitulate the various years and the work done in each.

The first year students study the elements of buildings both in their architecture and construction. They receive explanations of the *raison d'être* of each element, these being synchronised with historical lectures showing the application of first principles. Geometry, perspective, freehand, sciography and colour values, &c., are taught progressively, but pure design is only studied sufficiently to form a basis for construction. The lessons learned in technique and theory are finally applied during each of the three terms in the execution of classic detail such as the Orders.

In the second year the students specialise in portions of the practical and theoretical instruction given. More complex details of construction are studied and architectural design progresses based on historical periods —at first, compositions based on elements of the best examples of the principal periods, and finally, original designs inspired by historical styles. Courses of lectures on history, decoration, construction, and the theory of design continue throughout all the years in the graduate course, and are synchronised with the practical work in the studios, while freehand and drawing are, of course, also studied.

The third year allows increased scope for design, there being no restriction to periods or styles, and construction is more advanced, working drawings being prepared with the design subjects as a basis. Twelve-hour studies in design are frequent, and the teaching of composition in mass and detail occupies a proportionately larger time than in the second year. Design and construction are taken as one subject and not dissociated, and every effort is made to fit students for the commencement of outside work in architects' offices which will follow during the post-graduate course. A strong feature of the English architectural student has always been his attention to measured work and outdoor sketching, and every encouragement is given for the prosecution of these during the holidays.

In the fourth and fifth years, forming the post-graduate courses, the curriculum is arranged to provide further training to an enhanced standard and incidentally to satisfy the Board of Architectural Education. The time spent is almost evenly divided between advanced design and construction, with the addition in the fifth year of special subjects, such as "Decoration" or "Town Planning." It is also required that the students show proof of at least six months' experience in practical building work either during or after these years, before the final diploma is granted. In addition to the five years' day course described, the Association provides an evening atelier for design and life drawing, to furnish proper educational facilities for those unable to attend the day school.

An interesting feature of the Schools is the increasing number of female students, there being at present 27 out of a general total of over 200 in the day schools. A word must be said regarding the spirit animating the staff in the teaching of design. In England there is no architectural teaching tradition as in France, and this has resulted in the past in a lack of sequence in method, but has given scope for the formation of a new teaching tradition which adapts the best methods of sister schools, however modified to suit the English temperament and English architectural needs. In the Association Schools acknowledgment is made to France for the training given in theory of design and composition; and from America much has been learned regarding the general organisation of the educational scheme. The School aims, however, at forming future architects who will have at their command a thorough theoretical and technical equipment to be used not necessarily for the furtherance of one particular style or manner in architectural design, but rather as a basis for the satisfactory solution of the ever-changing problems confronting the architects of to-day and of the future.

THE SCHOOL OF ARCHITECTURE, LIVERPOOL UNIVERSITY.

PROFESSOR PATRICK ABERCROMBIE read the following paper, by PROF. C. H. REILLY, entitled "A Statement on behalf of the School of Architecture of the University of Liverpool." The statement was approved by the Board of Studies of Architecture and Civic Design, and was signed by Prof. C. H. Reilly, Mr. Lionel B. Budden (Lecturer in Theory of Architecture and Convener to the Board), Prof. Patrick Abercrombie (Professor of Civic Design), Mr. E. R. F. Cole (Lecturer in Design), and Mr. J. E. Marshall (Lecturer in Construction):—

Any real attempt to organise a system of architectural education in the United Kingdom has only been made during the last twenty-five years; whilst in France a definite scholastic method has been established and developed for over two and a half centuries. It necessarily follows, therefore, that as far as the technique of training in architecture is concerned we have come here with the object rather of receiving than of giving advice. Till the foundation of the Liverpool University in 1894 there was no institution in Great Britain giving full-time organised teaching in architecture throughout the day. Now we have several such schools, of which two—the Liverpool University and the Architectural Association Schools—have set up courses of instruction of five years' duration. The five years' course of the Liverpool School leads either to a Diploma or, in the case of matriculated students, to a Degree—that of Bachelor of Architecture—the Liverpool School having academic status. Both the five years' courses established at Liverpool and at the Architectural Association School have recently been recognised by the Royal Institute of British Architects as of sufficient thoroughness and merit virtually to qualify graduates of those courses for membership of the Institute, a qualification which will certainly confer the right to practise under the terms of any statutory registration of architects that may in the future come into force.

But although no scholastic system of architectural education in any sense comparable to that of the Ecole des Beaux-Arts was in operation until recent times, it must not be understood that the art of architecture was not taught in England. It was taught in the way which obtained throughout the mediæval period, and which persisted so extensively in Europe during and after the Renaissance; that is to say that it was taught by the practising master to his immediate pupils. The studio or office of the architect performed, in effect, or was expected to perform, a double function; it was regarded not only as an instrument of practice, but as a vehicle of instruction. The system differed from the French atelier in that the students acquired their knowledge incidentally whilst assisting in the work of the master. So long as a general agreement regarding traditions of design existed, the results of this method were in many ways sufficiently satisfactory. But with the collapse of the tradition which the Romantic Movements brought about in England, utter confusion followed in the teaching and practice of architecture. From an impersonal social art developing in a definite manner toward a definite end it became an affair, not simply of conflicting and rapidly succeeding fashions, but of chaotic individualism. And it is with this heritage of disorder that the British Schools of Architecture have still to contend in their efforts to stabilise and give logical direction to the development of the art which it is their business to teach.

The first necessity for a school of architecture in England is, in our opinion, that it should make a decisive choice of tradition; and that, having made that choice, it should adhere to it. By a tradition we mean not simply a phase or style, but a general convention such as the Mediæval or Classical. When the field of selection is so wide, the available knowledge of past and present conventions so vast, we believe it to be imperative that a policy of concentration should be adopted if there is to be any effective continuity in the teaching of a school. A five years' course may be regarded as the maximum period of full-time attendance which can practically be required of students. It is our experience that within the very strict limitations necessarily imposed by a course of such length, no more than the principles and method of a single broad tradition of design can be inculcated. The whole field may and, we think, should be surveyed theoretically and historically by means of lectures, the study of illustrations, drawings, models, and casts, and by reading and travel under direction; but instruction in design cannot, we are persuaded, be undertaken with profit in the same manner. Sufficient time is lacking in which to attempt to do it; and even if it were possible to extend the period of full-time study, it would not seem to us to be to the advantage of any school that it should profess an invertebrate catholicity in design; for the vigour of a school of architecture must be dependent on the strength of its artistic convictions, and these will be revealed in the consistency of its practice.

On several grounds—æsthetic, historical, and philosophic—the Liverpool University School has elected to teach design in the terms of the classical tradition and in those terms alone. It has at no time departed from its original decision, and has never had cause to regret

that it deliberately accepted the limitations involved. They have been to it nothing but a source of strength, and have made possible such definite reputation as the School possesses. That all schools should adopt the same tradition is not to be expected; nor is it to be desired. For it is clearly necessary to the proper functioning of architecture at the present time, when it is called upon to serve a civilisation so complex as our own, that it should be richly varied in its means of expression. If all schools accepted the limited artistic creed, a universal stereotyped fashion would arise—a fashion inherently incapable of meeting all the legitimate claims that might be made upon its resources. The evil would obviously be still further aggravated if, in place of a number of separate schools collaborating on equal terms in the work of architectural education, a supreme school were to be created in the Metropolis, and were, through a centralised organisation, given the opportunity of dictating the stylistic training of the profession. Such a school might be swept by a fashion, as was the Beaux-Arts School at the time of the Art Nouveau Movement. A number of independent schools forms a series of outposts against such a fluctuation of fashion.

The architecture which we believe can most fittingly embody the majority of the programmes of our civilisation is a developed classical architecture. But the material of the classical tradition is, in itself, so great and so varied in kind that it can only be fully interpreted through the agency of several schools, each with its own attitude and distinct contributive function. Furthermore, there are a minority of special programmes — ecclesiastical and otherwise — which, under particular conditions, may call for statement in a manner outside the classical convention. For the training of artists who shall be competent to deal with these occasions, specialist schools are perhaps advisable. In any case no single school, we believe, can, for the reason given, effectively cover in its educational capacity the total field of practice. Yet the whole field must be covered if all our architecture is to be worthily conceived and executed. Therefore, the only solution is to be found in maintaining a number of schools.

In the United Kingdom that number need not be high. A multitude of small schools would be less useful than a few large ones established in the capital and in the chief provincial centres. Only large schools of architecture can acquire the staff and elaborate equipment which are necessary to the teaching of their subject; and it is only in large schools that students obtain the full benefit of working together in groups, of gaining varied experience in assisting one another, and in observing one another's methods. A school of sufficient size is also able to continue to attract to its studios old post-graduate members whose continued presence is invaluable in sustaining its methods and particular tradition.

The atelier system, as we understand and would endeavour to reproduce it in Great Britain, presupposes that the practising patrons are themselves competently trained in design; that they are the products of an architectural, not a business education; and that they follow a scholastic and not an individual tradition. This being so, it would appear for some little time to be impossible to extend the atelier system much farther in our country than has already been done. The fruits of the recently established school training are beginning to be apparent amongst the ranks of the practitioners, but probably a generation will have to elapse before the profession is really leavened by architects who have received a thorough grounding in their art in an architectural school, and who consequently understand the principles of logical instruction in architecture. For this reason the Liverpool University School, in the use it makes of the atelier system, limits its choice of patrons to practising graduates of the School.

One of the chief difficulties confronting architectural educationists at present is the problem of correlating school training and actual practice. The difficulty is accentuated in England by reason of the gulf separating the average office-trained architect established in practice from the school-graduated student. It is a problem which, in that aspect, will only be nearer solution when all practitioners shall have themselves passed through the schools. In the meantime, the Liverpool School achieves a partial reconciliation between the two worlds of the studio and the office by so arranging the curriculum of the last two years of its five-year course that students can pass six months of their fourth and fifth years respectively in approved architectural offices. Should this experiment justify itself the arrangement may conceivably in the future be still further extended.

A point which we would stress in the curriculum of the Liverpool School is the importance given to measuring old buildings of established merit. This measuring is first undertaken during the summer vacation at the end of the first year or session of school study, when the elements of form and construction have been absorbed and before any larger attempt is made at design. The compositions thereafter produced in the second year of study at once show the effect of the measured drawings which have been made. The student has an avenue of approach to design; and the comparative sobriety of his subsequent projects and the practicability of his details we attribute to the intimate acquaintance with good work which he makes whilst measuring. We consider, indeed, that the English insistence on the measuring of old buildings has a direct practical value that constitutes an important contribution to architectural education.

For the rest, concerning the actual technique of training, we would add nothing, because, as we said at the outset, upon that subject we approach our French colleagues to learn and not to teach. The question of administration we believe to be on a different plane, as the conditions affecting it in France and in the United Kingdom are essentially different. And for that reason we believe that we must work out our own problem of scholastic organisation and control. In France we know that the highest prestige is enjoyed by the educational institutions of Paris, and that ultimate qualifying status is conferred by them; that a tradition of centralisation dating from Louis XIV has an historic justification of its own, exemplified in the unrivalled record of the Beaux-Arts itself.

But in the United Kingdom conditions of another order prevail. Our natural tendency in the highest grades of professional education is toward decentralisation and devolution to the furthest extent that is compatible with unity of control and a proper subordination of the interests of the parts to the interests of the whole. British educational institutions of the first rank are not State institutions, neither are they concentrated in London. In the form of virtually autonomous universities they are distributed throughout the provinces. Their traditions and resources, the training which they give, confer ultimate prestige; and in consequence it is those professions whose members are exclusively trained through the medium of the Universities that in Great Britain enjoy the highest status.

ARCHITECTURAL EDUCATION IN SCOTLAND.

MR. ARTHUR DAVIS read a paper by Mr. Alexander N. Paterson on "The Position of Architectural Education in Scotland," of which the following is an abstract:—

We, in Scotland, have not been behindhand in architectural education. To-day we have four centres of training: at Edinburgh, Glasgow, Aberdeen, and Dundee—the three former with a full course of instruction, equivalent in most respects (except as to its long tradition) to that at the Beaux Arts in my time; the last-mentioned on a more restricted scale.

But before dealing in detail with the aims and activities of these several schools, it will be of advantage to take notice of the outside influences affecting the scheme of education of the young architect in Scotland at the present time. These, in the main, are four: (1) H.M. Government, acting through the Scottish Education Department; (2) The Board of Governors of the above-mentioned Central Institutions, together with the Principals and Directors of their Architectural Departments; (3) the practising architects throughout the country, but principally in these centres; and (4) only recently, the Institute of Scottish Architects. To these should perhaps be added the R.I.B.A., with the Board of Architectural Education created by it, in view of a certain amount of direction given to the course of studies in the Scottish schools by the Preliminary, Intermediate, and Final Examinations of which you have already heard. But such influence is very limited; indeed, the courses of instruction in at least some of our schools were settled on much their present lines long before the Institute's graded examinations were introduced, and the proportions of Scottish students who have hitherto gone forward for the R.I.B.A. Intermediate and Final Examinations in order to qualify as Associates is comparatively limited—at least, of such as have remained in Scotland.

The first-mentioned of these controlling influences, the Scottish Education Department, supplies the funds required for the upkeep of the schools in general, to the extent of about half the amount employed, the remainder being contributed locally from fees and endowments, &c., and requires, in consequence, to be satisfied as to the nature and sufficiency of the curriculum, the qualifications of the staff, &c. It endeavours, not altogether successfully, to keep all the schools up to the same standard by requiring the several Boards to hold joint meetings of representatives from each for the settlement of a common policy, and it appoints the Assessor who, along with a local jury of architects, decides as to the sufficiency of the works submitted for the Diploma (afterwards referred to). . . .

Of the Board and Directors of the schools—the second controlling factor—it need only be said that with them rest the responsible duties of appointing the staffs, and, in consultation with them, of fixing in detail the courses of study. The influence of the practising architects as a body requires more consideration. While the advantage, and indeed the necessity, of school teaching is now generally recognised, the older method of training—that by apprenticeship or pupilage in an office—still maintains its importance, and rightly so as we believe. At its best, indeed, the school is regarded only as an essential supplement to the office, for there only, in the daily task of copying or preparing working drawings and on the works in course of erection from these, is the student brought into direct touch with the real aim and end of architecture—buildings sound in construction and fitted to their purposes (and if sound and fit, beautiful in essence), as against designs "in the air," the purpose and life of which are rounded off and completed on the drawing board.

In Scotland, the system of pupilage, with a premium paid to the employer on entrance to the office, has never, with rare exceptions, been adopted. Instead, the apprenticeship system has been, and remains, the general rule, under which the youth undertakes an engagement of (generally) five years during which, while learning the profession, he is paid a small salary rising from year to year, and on completion of his term is recognised as a full-fledged draughtsman. When school training was first introduced, the classes were generally confined to the evening or early morning, the day being devoted to office work, but as the curriculum developed this was found to put too great a strain on the student, and to draw out interminably the completion of the course. It has, therefore, become the rule that, for students aspiring to the Diploma, while a proportion of the classes may be taken in the evening, at least two sessions of day work must be included. How then to link this up with the term of apprenticeship has become a problem, not yet altogether solved. Here comes in the influence of the body of practising architects whose concurrence is necessary in regard to any system of "sandwiching" the office and school work

of their assistants, and here also that of the Institute of Scottish Architects, equally concerned with the national advancement of architecture through the fullest development of the school training, and with the practical interests of its members on the business side. On this matter the Education Committee of the Institute, with the approval of the Central Council and of its constituent branches or "Chapters," has recently issued a series of "Recommendations," from which I quote the following:—

(1) That no youth be engaged as an apprentice unless he is at least sixteen years of age and has the Intermediate Certificate (of the Scottish Education Department) or a general education at least equal to that certificate or to that required from Probationers of the R.I.B.A.

(2) That five years should be the standard term of apprenticeship, but this period should include time spent by the apprentice as a student in day classes at a recognised school of architecture up to a maximum of three years, and on the understanding that summer vacations be spent in the office of the architect to whom the pupil is articled or engaged—*i.e.*, making the minimum time which must be spent at actual office work, apart from day classes, two full years and three summer vacations. *Note.*—The remaining attendance at day classes required for a diploma in architecture should be spent after the apprenticeship is completed.

(3) That the employer makes arrangements that will enable the pupil to take full advantage of the facilities which are available in his district for architectural instruction in day or evening classes and that he make it a condition of apprenticeship that the pupil attend these classes.

In other respects also the Institute is directly influencing the educational position in Scotland. By a conference already held with the heads of the Education Department and one under consideration with the directors of the schools, it aims at co-ordinating the work and strengthening the position of these and ultimately securing affiliation with the Universities in their respective centres, with, as an objective in this connection, the supplementing of the present Diploma by a Degree in Architecture. It has also undertaken the general direction of the National Art Survey, under which, with Government assistance, selected students in the schools have for many years been engaged in making measured drawings of characteristic examples of Scottish architecture and, in conjunction with the "Board of Trustees," which has hitherto acted as custodians of the drawings, is proceeding to publish the results under cost price for the benefit of students.

Mr. Paterson then described the work of the Glasgow School of Architecture as being the largest of the Scottish institutions, and which is, with one or two exceptions, fairly typical of the group. Until 1904 two architectural courses were conducted at Glasgow, in the School of Art and the Technical College respectively. In that year they were amalgamated, the respective heads of this section of study being left in charge in each institution, and a General Director appointed as responsible head over both. For this post, the Joint Board were fortunate in securing M. Emile Bourdon, S.A.D.G., who devoted himself whole-heartedly and with the utmost success to the work until the outbreak of the war, in which, after receiving many honours, French and British, he fell gloriously at the Battle of the Somme. The number of students which, during the preceding ten years, had averaged 125, had meantime declined almost to zero, and while the work was carried on during the remaining war years with such of the staff as remained, with the assistance of a visitor, appointed for each session from among the leading architects in the city, the post of Director was left in abeyance until this year, when it has been filled by the recent appointment of Mr. James B. Fulton, F.R.I.B.A., an ex-student of the school, with a brilliant record as an architect and successful teacher of the art in London. On taking control, Monsieur Bourdon modelled the course of study as regards design, and also as to the progress of the student from the lower to the higher grades of work on the basis of marks (valeurs) obtained, very much on the lines of the Ecole des Beaux Arts, and these arrangements still continue. At both the School of Art and the Technical College the extensive resources of these institutions are at the service of the students, in the former in the way of artistic, in the later of scientific, teaching, in addition to the special direction of the more specialised architectural studies by the respective professors—Messrs. Alexander McGibbon, A.R.I.B.A., and Charles Gourlay, B.Sc., A.R.I.B.A.—and their immediate assistants, who are all trained architects.

The students also have the dual advantage of working alongside of painters, sculptors, and designers at the former institution, and with engineers, civil and mechanical, at the latter.

The course, if taken entirely on day work, requires a minimum of four years, though it might with advantage be extended to five, and, as in most cases school work is combined or alternated with office work, six or seven years at the least is the more general term before the Diploma can be attempted. As a matter of fact, on no occasion has it been gained within four years, even when devoted exclusively to school work. This granted, the student may fairly be considered to have obtained a thorough grounding in architecture as regards both design and construction, based on a sound foundation in mathematics, mechanics, and drawing. While the Diploma Course is the normal one for day students and for those who aspire to practise as architects, restricted portions leading to what are called Junior and Senior Certificates may be taken, and terminated at those stages by such as aim at improving their qualifications as draughtsmen.

In whatever manner the work of the Diploma Course is distributed, the student must put in the equivalent of at least two sessions day classes (not necessarily continuous) and, should the school course be completed before the full term of apprenticeship has been served, though this is rarely the case in practice, the latter must be finished also before the Diploma is granted. . . .

In the teaching of design throughout the school, a rough sketch (*esquisse*) is first made in the classroom to a previously issued programme, and within a stated period. Following a criticism of this by the master, it is elaborated under direction, the greater part of the student's time being devoted to this study, and the lesser to the production of his finished drawings. While the awards, in the form of passes, are made by the staff, an outside architect is invited in each case, when the designs are hung, to deliver a reasoned criticism of each in turn to the assembled students.

The course being concluded, and the student having obtained all the marks required to give him his Junior and Senior Certificates, he may then only proceed for the Diploma. Having submitted to and received the approval of the Professor of a specific programme, he prepares a set of drawings in plan, section and elevation, complete with all constructional detail, and accompanied by a written specification. These are submitted to a Jury consisting of the Director and Professors, one or two outside architects, and the Assessor appointed by the Education Department from a list of eminent architects, generally from London, drawn up beforehand at the annual meeting of the representatives from all the schools, when, if considered up to the required standard, the Diploma is duly awarded.

The scheme of education in the Glasgow School thus outlined covers fairly accurately that followed at Edinburgh and Aberdeen, in the former under the direction of Mr. George Washington Browne, R.S.A., at the Edinburgh College of Art and for the science side at the Heriot-Watt College; at Aberdeen (where the Directorship is at present vacant) as a separate department of the Robert Gordon Technical College. Neither of those, however, has the advantage, as it must be considered, of a Director with supervision of and responsible for both the artistic and scientific sides of the course. At Dundee, where the classes form a department of the Victoria Institute, the course meantime does not proceed beyond the Certificate stage, though it is hoped that before long means may be found to extend it in line with the others. At Edinburgh, the course is counted as one of five years, for only one of which, however, are day classes required, the remainder being taken by morning and evening classes. At Aberdeen two years' day classes are required, and these, by arrangement with the local Chapter of the Institute, are taken before the student enters an office, while counted full time for his apprenticeship. At the latter centres, also, a Post-diploma class has been instituted enabling senior draughtsmen or young architects already in practice to continue their studies with expert advice and direction, a scheme which might with advantage be adopted in the other schools. . . .

MR. H. P. CART DE LAFONTAINE read a paper by Mr. ARTHUR KEEN, on "The Study of Old Buildings," given on page 571.

MR. J. W. SIMPSON, in a few admirable words, expressed the regret of the British delegates for the absence of Monsieur Louvet, President of the S.A.D.G., and asked that a message of affectionate sympathy and hope for a speedy recovery should be addressed to him by the Conference.

The proceedings of the Conference were conducted in French, which was also the language adopted for the reading of papers. A vote of thanks to the readers of papers was proposed by M. Laloux, of the Institut, and the meeting then terminated.

Friday, November 13.

During the morning a visit was made to the Galleries and Ateliers of the Ecole des Beaux-Arts, under the guidance of MM. Lafollye, vice-president of the S.A.D.G., Godefroy, Hon. Secretary of the Conference Committee in France, and other members of the S.A.D.G.

The British delegates were subsequently the guests of the Société des Architectes Diplomés at luncheon. This function was presided over by Messieurs Nenot, of the Institute of France, and Lafollye, Vice-President of the S.A.D.G. Amongst the French architects present we noted: Messieurs Girault, of the Institute of France; Bomier, Sous-Directeur de l'Ecole des Beaux-Arts; Bonnier, Past-President, S.A.D.G., and Inspecteur-Général des Services d'Architecture et d'Esthetique de la Ville de Paris; Defrasse, Inspecteur-Général des Bâtiments Civils; Mora, Secretaire-General du Syndicat de la Presse Artistiquè; Andre, Chef d'Atelier de l'Ecole des Beaux-Arts; Mollet and Letrosne, Vice-Presidents of the S.A.D.G.; Godefroy, Chef d'Atelier, Rapporteur du Conseil à la Conférence; Schneider, Sécretaire-Général, S.A.D.G.; Poupinel, Hon. Treasurer, S.A.D.G.; Guabet; Thoumy; Richardière, Bérard, and Danne.

At the conclusion of the repast M. LAFOLLYE, Vice-President of the S.A.D.G., made a short speech of welcome to the British delegates, and after referring to their regret at the unavoidable absence of their President, Monsieur Louvet, expressed the pleasure of all members of the S.A.D.G. at the visit of their British colleagues, and the renewal of the cordial relations which had been so successfully initiated in the days before the war, and said that their Society intended to give immediate effect to Mr. Simpson's proposal for the formation of a Franco-British Union of Architects.

MONSIEUR NENOT, of the Institut and Société Centrale, proposed the health of the President of the R.I.B.A., and said that all that now remained to remove the misunderstandings between their two countries was to "Tamiser la Seine et Seigner la Tamise." He felt that meetings of this kind were of great value, and was sure a great deal of good would result from the friendly discussion on architectural questions.

MR. J. W. SIMPSON in reply, after thanking the company for the honour they had done him in proposing the toast, expressed the gratitude

of the British delegates for the most hospitable way in which they had been received. After referring briefly to the good work done in the past by the International Bureau of Architects, he said he hoped the new association which he had suggested yesterday would still further unite the architects of Great Britain and France.

MONSIEUR BOMIER, of the Ecole des Beaux-Arts, rose to make an announcement with regard to the conditions for the *projets*, and said members would be interested to learn that they had that day decided that the subject of all future *projets* would be announced one month before the programme was issued; they hoped this would give students an opportunity of studying existing buildings and not relying only, as was at present too often the case, on the study of previous projects.

MONSIEUR GIRAULT (R.I.B.A. Gold Medallist) cordially supported the proposed Union of French and British architects.

MR. CART DE LAFONTAINE, Hon. Secretary of the British Committee, proposed the health of the Press of the allied countries, coupled with the name of Monsieur Mora. After a brief reference to the assistance M. Mora had given them at their previous meetings, more especially in connection with the Exhibition of British Architecture in Paris in 1914, Mr. Lafontaine said he thought they would all agree that meetings of this kind were of real value in cementing the Entente. He felt they had a special mission as artists to lead the way in giving a practical proof of the lasting friendship between England and France, which had stood the test of war, and to-day was as true and strong as in those hours of anxiety and doubt. They must not be content to rely on the official relations of their two Governments, but should supplement these by their own endeavour, and remember that Governments under present conditions only moved in response to public opinion and pressure. It was in voicing this opinion that the Press of both countries could assist them towards the achievement of their common ideal, the close and lasting friendship of Great Britain and France.

M. MORA briefly replied, and members adjourned to the rooms of the S.A.D.G., where a discussion took place on various questions resulting from the papers read at the first session of the Conference.

MONSIEUR GODEFROY gave a summary of the amendments to their syllabus now under consideration by the *Conseil d'Enseignement de l'Ecole des Beaux-Arts*. He referred to the modification announced by Monsieur Bomier earlier in the afternoon, and said that the intention was to give students an opportunity for sketching and measuring existing buildings rather than simply relying on the combination of various designs for similar subjects which had been successful in *projets* previously proposed to students by the *Conseil d'Enseignement*. Dealing with the teaching of construction as outlined in M. Arnaud's paper, he explained that this was accompanied by cinematograph pictures illustrating the practical application of the various methods of construction and the use of different materials as described in the lectures. The question of sketching and measuring was, he thought, not given sufficient importance in their training, and he was sure that if students could be induced to do perspective sketches of actual buildings on the spot instead of copying them from published drawings, it would be of immense advantage. He suggested that in their perspective subjects the subject set should specify a particular building and even a particular spot from which the sketch should be made as one of the requirements of the course. Dealing with the present system of having competitive entrance examinations half yearly, M. Godefroy suggested that this was illogical, as the course of studies was annual. He thought there should be only one entrance examination each year, which should take place so that the newly-admitted student was able to start work immediately at the beginning of the session.

MONSIEUR BÉRARD referred to a suggestion made many years ago by the late M. Gaudet that *projets* should be rendered more in their outline than in their present form where the true delineation of architectural form was often obscured by a mass of irrelevant colour or shading. He thought the English method of instruction had a particularly good feature in that the British student at the end of his studies was able to give his client a reasonable idea of the cost of the building and price out quantities. The student at the Beaux-Arts was not able to do this because he had not received the necessary training. He considered the minimum of their requirements should be that at the end of the Diploma *projet* he should have to give the ordinary kind of estimate which the average client required. This suggestion was supported by two members of the S.A.D.G.

M. DESPOUY also supported the proposal.

M. DUQUESNE said he well remembered that he himself was not able to give an ordinary estimate when he started practice after the Diploma examination.

M. RICHARDIÈRE said he thought the solution of this and other practical problems was best met by the student serving three years as an articled pupil in an architect's office.

MR. DAVIS explained briefly the English custom with regard to the employment of a quantity surveyor. He had, during his practice in partnership with the late M. Mèwes, a considerable experience of construction abroad as well as in England, and he had been struck by the fact that there was nothing in France corresponding to the employment of a quantity surveyor as we understood it in England.

This provoked a lively discussion. MONSIEUR BÉRARD said he thought this diminished the rôle of the architect to a considerable extent: their view was that the architect should be the "Master of the Works" (*Maître de l'Œuvre*) in the fullest sense. This view was supported by other members.

On the conclusion of the discussion, MR. PAUL WATERHOUSE (in the absence of the President) expressed the thanks of the British delegates for the reception which had been accorded them and hoped that they would be able to reciprocate with an equally cordial welcome to members of their society when they visited England next year.

SMOKE ABATEMENT FROM THE DECORATOR'S POINT OF VIEW.

AT a meeting of the Institute of British Decorators held at Painters' Hall on Tuesday last, Major F. Cornelius Wheeler read a paper on the subject of smoke abatement and its remedies from a decorator's point of view. It had been stated, he said, that the smoke and dirt caused by coal fires were the decorator's best customers, but he believed that if the smoke nuisance were abated much finer schemes of decoration would be carried out than at present. That had been found to be the result of the smoke abatement laws in America, where some of the finest decorative schemes in the world were now being carried out. Pittsburgh was 25 years ago undoubtedly the dirtiest city in the United States, and some 60 per cent. of the population suffered from pulmonary and similar diseases. As the conditions were gradually becoming worse, an Act called the Blue Sky Act, which forbade the use of solid fuel, was passed and put into force with characteristic American energy. As a result the blue sky in Pittsburgh was now an actual fact and the death-rate had been reduced to two-thirds of the former rate.

Raw coal burnt in open grates was admittedly the prime cause of the smoke nuisance, and incidentally gave the least efficiency. Owing to their cost, electrical heaters were unsuitable for many of the small houses now being built, but gas fires could be installed at no extra expense—in fact, by the elimination of chimney breasts a saving of nearly £100 per cottage could be effected. The Ministry of Health had prepared designs for houses with gas fires by which the fumes were taken away through the thickness of the wall and emitted through vents under the eaves, thus eliminating the necessity for chimneys. In order to prevent down-draught through these vents a new baffle had been produced which entirely prevented down-draught.

THE RATING OF CONVERTED HOUSES.

WE are constantly receiving inquiries from correspondents as to the meaning and effect of the provision as to rating contained in section 12 subsection (9) of the Increase of Rent Act, and we find it quite impossible to give any definite opinion on any case, as the section is very obscure. It appears that before the benefit of this provision of rating can be claimed it must be shown that the house is such that the Act would have applied to it had it been erected or reconstructed and let on August 3, 1914. But it is extremely difficult to know how this is to be made out, for to determine whether the Act applies to any house the standard rent and rateable value have to be considered. It seems extraordinarily difficult to apply the Act in quite hypothetical circumstances, and especially in the case of converted flats, as under the old Acts, in Woodward *v.* Samuels (*The Builder*, April 2), it was held that the standard rent of each flat must be a proportionate part of the rent at which the building as a whole was let on August 3, 1914, and we imagined converted flats were excluded from the operation of the new Act to meet the difficulty experienced from the finding in this case.

Something should be done to make the position clear, for the question of rating has a most important bearing on the provision of new houses, and the legislation is quite incomprehensible to the ordinary person as it stands. Until an authoritative opinion has been expressed by the courts on the meaning of this obscure provision no opinion of any value can be expressed upon it, but possibly something would be done by Parliament were the matter brought to its attention by some of the members representing constituencies where building operations of this kind are being carried out. This is a flagrant example of legislation dealing with matters of importance to ordinary individuals being expressed in such terms that its meaning can only be guessed at even by persons versed in the ambiguous phraseology of Acts of Parliament.

BOOK.

Practical Sheet Metal Duct Construction. By W. NEUBECKER. London: Hodder & Stoughton. 1920. Price 12s. net.

This little book of 181 pages, full of practical drawings, over 200 in number, is evidently written by one wholly conversant with the manual processes required in sheet metal work. A short introduction upon the necessary tools and equipment is followed by a general description of heating and ventilating systems. Then comes a longer chapter on cutting, bending and seaming ducts. The construction of joists occupies a separate chapter, after which the hanging of ducts is fully considered and illustrated. Details follow in forming elbows, register openings and the like, after which air-registers themselves are considered in some detail. The concluding chapters deal with wall ducts, casings, assembling work, dampers, cowls and general completion. The figures are clear and very practical in character, while the descriptive matter should enable an intelligent artisan readily to master the details of this work. Now that the health of the worker is receiving so much more consideration, ventilation schemes should be on the increase, and if the wages earned by sheet metal workers during the war form any criterion this should be an attractive industry. We are not aware of any book that quite fills the niche of that under review, and we think it will prove useful both to the artisan and those responsible for planning or supervising his work.

THE TOWN-PLANNING INSTITUTE.

Presidential Address.

THE first general meeting of the session of the Town-Planning Institute was held on November 5, at the offices of the Institution of Municipal and County Engineers, 92, Victoria-street, S.W., when Mr. H. E. STILGOE, the newly-elected President, delivered his Presidential Address.

THE PRESIDENT, having expressed his appreciation of the honour done him, said people were taking a wider view of town development, although there was still much to be desired in this respect, and greater knowledge was necessary. Having quoted from the address of Mr. John Burns at the inaugural dinner of the Institute in 1914, with reference to its aims and objects, Mr. Stilgoe said the ideal, the very best, was the only goal worth striving for. Anything short of this in a town-planning scheme meant that future generations would suffer from the want of foresight at the present time, as they to-day were suffering from the neglect of the past. In the preparation of schemes it was necessary to take the widest view of the situation. It was worse than useless to plan even a small area without first considering its effect upon the locality as a whole. It was essential to give primary consideration to the great arterial roads and the connecting and secondary roads with a view to affording the best means of road communication to the various districts, and thus to relieve the lesser or estate roads of much traffic which inconsiderate laying out often imposed upon them. By this means could the requisite widths be assigned to the various classes of roads, thereby enabling the lesser or estate roads to be constructed more economically. He had often urged the necessity for looking well ahead in the matter of adequacy of width of the arterial and other important roads. One saw day by day the evil of that reprehensible form of planning which had left them with narrow main streets; and that which was as bad, or worse, the building forward even to the forecourt lines in front of existing buildings, making for the future an almost impracticability of ever widening some of the arterial streets which now had sufficient width between the houses if it were only reserved for future street improvement. No doubt this reservation for future improvements was in the minds of the early planners; but a new generation, careless of the needs of their successors, had allowed to be enclosed parts of the roadside wastes forming part of the highways under the old Inclosure Awards, or had allowed the forecourts to be turned into building sites. Was there no authority armed with sufficient power or sense of civic responsibility to prevent this kind of thing? Was it not of sufficient importance that there should be a central authority, charged with the duty of planning the arterial roads in and the approaches to London, and invested with the necessary powers to enforce the observance of the scheme?

The President proceeded to refer to the scheme of the Birmingham Corporation for the widening to 110 or 120 ft. of 43 miles of existing roads and the construction of seven miles of new radial main roads, and the allocation of the roads to various purposes, *e.g.*, tramway track set apart from the carriageways, footways, and so on. With regard to the space reserved for an independent tramway track, this would well repay its provision even if a surface tramway were not constructed. The popular means of conveyance, whatever it might be, would require width. The space could be used for ornamental purposes, and it might become eventually the site for a tramway subway. A great deal of expense in estate development could be obviated by a careful scheme of sewerage, prepared in consultation and agreement with the local authority.

A very important and pleasing feature in connection with town planning was the greater consideration given to the design of houses for the working classes. The old "tunnel-back" house did not find favour with the modern designer, and there was much more regard for convenience, sanitary arrangements, baths, &c. More attention was also being paid to aspect and to obtaining the maximum of sunlight in the principal rooms. Unfortunately, owing to a combination of circumstances, the operations of the speculative builder met with a very serious check just at the time when better designing was coming into vogue, and there had been very little progress in cottage building during the war. This was much to be deplored, as there was little doubt but that the speculating builder would have adapted himself to building the required types of houses.

The present activity in the preparation of housing schemes made it particularly necessary to give the fullest consideration to their effect upon the planning of the district and to see that they fitted in and were a part of the general scheme. Many of the London housing schemes had come into his hands in connection with the provision of water mains. These he had examined with great interest, and he had had conferences with some of the authors which had led to mutual help. In some cases, where the estate to be developed abutted upon an existing arterial road, it was evident from the lack of provision for widening such road that there was no co-operation in this respect. He knew well the difficulty of making one town-planning scheme harmonise with another in the same locality, even when one had the will to do so; much more was it the case when the preparation of a comparatively small scheme was carried out with regard only to itself and without relation to a skeleton plan of the district. He had prepared five town planning schemes, covering over 25,000 acres, in Birmingham, and his experience had been that one's views were widened as the work proceeded, with the result that some of the earlier work had to be brought into harmony with the later.

The work of the Town-Planning Institute was bound up with all that was for the welfare of mankind. In the Institute members of the various professions engaged in the work met for the purpose of imparting knowledge and exchanging ideas, so that each succeeding scheme might profit from experience gained. In this way their outlook was enlarged and their views strengthened. The membership now numbered 289, and the influence of their work was extending not only at home but in the Colonies and in foreign countries.

DISCUSSION.

Mr. RAYMOND UNWIN, F.R.I.B.A., who proposed a vote of thanks to the President, referred to the effect of the changing condition in regard to transport upon town-planning, and emphasised the value of having at the head of the Institute a man who had frankly faced and dealt with the old conditions. He called attention to the exhibition at the Royal Institute of British Architects of the survey made of London; and expressed the hope that a survey of the conditions of a town would become an ordinary part of municipal activity. Those connected with housing schemes probably all felt it was unfortunate that the housing campaign had had to take precedence of the town-planning campaign. The cities ought to have been planned before they began housing, and housing work was having to be carried out in the dark because town planning was 20 years behind in its work. He hoped there were not many cases in which the provision of arterial roads or the necessary widening of existing roads were being relegated, as that was a point the Ministry of Health did not want to be overlooked.

Mr. R. BRODIE (President of the Institution of Civil Engineers) seconded the motion, and observed that some of the good work which had been done in connection with wide roads ran considerable danger of being completely spoilt by housing schemes. It was the height of nonsense to put small, cheap and mean-looking houses on roads which cost thousands of pounds per mile to build. He had suggested that the central authority should make a universal law that the building line on a main road should be not less than 60 ft. from the centre of the road, and if this was carried out he believed no injustice would be done, whilst the country would benefit considerably in the future.

The motion was carried.

THE AUCTIONEERS' AND ESTATE AGENTS' INSTITUTE.

AT a meeting of the Auctioneers' and Estate Agents' Institute, held in London on November 12, Mr. F. R. E. Davis read a paper entitled "Railways and Real Property: A Glance into the Future," in the course of which he said the remedy for the present overcrowding and congestion in the large towns was to be found in the establishment of a frequent, rapid and reasonably cheap train service, to enable the workers to reside in more healthy surroundings and yet reach their places of employment without the necessity for having to spend an unduly long time in travelling. Proximity to a railway might almost be said to be *sine qua non* where the selection of sites for housing estates was concerned; and the old inconvenience which distance from the working centre entailed could largely be met by the introduction of fast suburban electric train services. A satisfactory solution of the means of providing easy access to suitable housing sites some distance from town areas gave a two-fold benefit; it not only put the advantage of rural life within the reach of the worker, but it also enabled a substantial saving to be effected in the initial cost of the schemes, since the price for building land should be considerably cheaper in outlying districts than in towns.

The necessity, in preparing a town planning scheme, for co-operating, from the initial stages, with the authority responsible for providing the railway facilities, was obvious. Sites earmarked for factory and other industrial purposes would need to be well served with sidings and accommodation for the quick despatch and economic and easy handling of incoming and outgoing traffic. The working methods connected with such traffic must, of course, fit in with the operations of the main lines of railway, since therein lay part of the science of transport; and if the anticipated developments matured, stations for both passengers and goods might be needed in the area, and provision for them should be allowed for in advance in the scheme. If the present practice continued, that idyllic state of affairs was hardly likely to be brought about. The few schemes already brought to fruition showed, almost without exception, traces of a stern fight with the particular railway company affected. The protective clauses bore eloquent testimony to points of difference which had to be adjusted; and they appeared to indicate an opposition, on general grounds, on the part of railway companies which, if well-founded, could but be prejudicial to the smooth working of the scheme as a whole.

The New Housing Bill.

It is reported that Government amendments to the first four clauses of the Ministry of Health (Miscellaneous Provisions) Bill have been placed on the order paper of the House of Commons by Dr. Addison. They include a proposal limiting the power of local authorities to take empty dwellings for housing purposes, so that no building erected after, or in course of erection on, April 2, 1919, will be affected; and amendments are also to be put forward safeguarding local authorities in the exercise of their powers under the clause relating to the compulsory hiring of houses and providing that any committee exercising such powers must obtain the sanction of the authority itself; that houses erected by local authorities are not to be subject to the operation of the clause; and that any order made by the Minister in this connection shall be subject to revision by an independent tribunal.

HOUSING AND TOWN-PLANNING NOTES.

Electricity in Small Houses.

The Newcastle-upon-Tyne Electricity Supply Co. has erected a number of houses at Billingham Village, for the benefit of the workers in the North Tees Power Station. The houses, 73 in number, will be semi-detached, eight to the acre, and provided with electrical apparatus. The living-rooms are fitted with a coal fire grate with boiler for domestic hot-water supply; the bedroom above also has a fire-place, but this and all other rooms of the house can be heated by electricity. In this way the cost of constructing several fireplaces and chimneys has been saved, more space released for the occupiers' use, and the need for him to provide fireplace fittings and furniture avoided. The whole house is lighted electrically, and provision is made for the use of electric irons; a complete cooking range is fitted in the scullery, and a clothes-washing copper operated by the same means is a feature of the equipment. The electric fires in the bedrooms vary in capacity with the size of the rooms, and at all parts of the house it is possible to operate a vacuum cleaner, fan or other electrical apparatus.

Bollington U.D.C. Housing Scheme.

The Ministry of Health has now sanctioned the erection of 50 class "B" and 16 class "A" houses on the Grimshaw-lane site, for the Bollington Urban District Council. The lowest tender was that of Messrs. J. Byrom, Ltd., Woolfold, Bury, Lancs., amounting to £1,070 per house for the "B" type; the "A" type houses being erected on the basis of the same schedule of prices. The houses comprise four different arrangements in the "B" houses and one in the "A" houses. The external walls are to be faced with local stone-coursed parpoints to front elevations and random rubble to backs and sides, with a 2 in. cavity and 4½ in. brick lining. The internal partition walls are to be 3 in. breeze concrete slabs on the "Lian" principle. The whole of the heads, sills and steps are to be sawn local stone. The street and sewer contract was placed with the same firm in July last, at an average cost of £47 per house. The architect for the scheme is Mr. Arthur Clayton, M.S.A., M.J.I.E., of Duchy Chambers, Clarence-street, Manchester, and 9A, Market-place, Macclesfield.

WEEKLY HOUSING RETURN.

Progress of housing schemes up to November 6:—Schemes submitted, 11,265; approved, 8,465. Lay-out schemes submitted, 6,575; approved, 6,008. House-plans submitted, 271,358 houses; approved, 256,118. Tenders submitted, 17,541 houses; approved, 155,330. Contracts have been signed for 120,542 houses. Schemes dealt with during the week-ended November 6:—Schemes submitted, 53, Lay-outs submitted, 36; approved, 40. House-plans submitted, 2,033 houses; approved, 2,096. Tenders were submitted for 2,113 houses and approved for 2,627. These schemes included the following:

Applications.

SITES.

URBAN.—Brownhills, 12.67 acres; Tottenham, 12.11.

LAY-OUTS.

URBAN.—Burton-on-Trent, Dartmouth, Felixstowe, Leeds, Richmond, Ryde, S. Molton.

RURAL.—Ampthill, Axminster, Bath, Biggleswade, Bucklow, Drayton, Easthampstead, Farnborough, Goole, Lichfield, Melksham, Mildenhall, Newport Pagnell, Ripon, St. Germans, Tavistock, Thorne, Wareham, Whiston, Windsor.

COUNTY COUNCILS.—Cambridgeshire, Lancashire.

HOUSE-PLANS.

URBAN.—Barry, 26 houses; Burton-on-Trent, 24; Cardiff, 124; Dartmouth, 22; Earby, 30; Felixstowe, 60; Glyncorwg, 208; Leyland, 345; Llanelly, 5; Richmond, 114; Ryde, 40; St. Marylebone, 128; Shildon, 126; Stourbridge, 200; Weetslade, 100.

RURAL.—Barton-upon-Irwell, 30 houses; Bath, 12; Bucklow, 50; E. Stow, 12; Godstone, 12; Goole, 10; Hitchin, 12; Hunslet, 70; Lichfield, 10; Llantrisant and Llantwit Fardre, 78; Melksham, 12; Mildenhall, 4; Pembroke, 16; Ripon, 6; St. Germans, 15; Skirlaugh, 10; Tavistock, 4; Wareham, 6.

COUNTY COUNCIL.—Cambridgeshire, 12.

Approvals.

SITES.

URBAN.—Exeter, 43.36 acres.

RURAL.—Blackwell, 61.74 acres.

LAY-OUTS.

URBAN. — Bridgwater, Burton-upon-Trent, Felixstowe, Hexham, Holbeach, Penzance, Rawmarsh, Richmond.

RURAL.—Amesbury, Ampthill, Axminster, Barton-upon-Irwell, Battle, Biggleswade, Blyth and Cuckney, Bradford-on-Avon, Drayton, Easthampstead, E. Stow, E. Westmorland, Farnborough, Goole, Lichfield, Mildenhall, Morpeth, Newport Pagnell, Penrith, S. Shields, Thorne, Whiston, Windsor.

COUNTY COUNCILS.—Cambridge, Lancashire.

HOUSE-PLANS.

URBAN.—Burton-on-Trent, 24 houses; Desborough, 30; Earby, 30; Felixstowe, 60; Gellygaer, 136; Glyncorwg, 208; Harrington, 188; Hessle, 80; Leyland, 345; Llanelly, 18; Maidstone, 20; Margam, 30; Rawmarsh, 12; Rhondda, 2; Richmond, 114; Stourbridge, 200.

RURAL.—Ampthill, 6 houses; Barnard Castle, 10; Barton-upon-Irwell, 30; Battle, 6; Clown, 30; East Ashford, 36; Easthampstead, 8; E. Stow, 12; E. Westmorland, 3; Goole, 10; Hambleden, 4; Hunslet, 70; Lichfield, 10; Llantrisant and Llantwit Fardre, 78; Mildenhall, 4; Morpeth, 100; Newport Pagnell, 4; Penrith, 30; Skirlaugh, 10; Tadcaster, 18; Tarvin, 8; Wareham, 6; Whiston, 78; Windsor, 14.

COUNTY COUNCILS.—Cambridgeshire, 12; Lancashire, 2.

Tenders Approved.

URBAN.—Adwick-le-Street, 36 houses; Barking Town, 194; Cheadle and Gatley, 122; Chester-le-Street, 150; Chorley Wood, 34; Diss, 40; Fleetwood, 54; Glyncorwg, 322; Irthlingborough, 49; Kendal, 28; Liverpool, 20; Llanelly, 18; Plymouth, 52; Portsmouth, 12; Rawmarsh, 12; Rhondda, 2; Southwick-on-Wear, 100; Stourbridge, 377; Stratton and Bude, 18; Thurmaston, 12; Walton-le-Dale, 66; Wandsworth, 31; Wednesbury, 4; Whitehaven, 20; Whitwood, 28; Wigston Magna, 6.

RURAL.—Aberayron, 6 houses; Aylesbury, 14; Biggleswade, 12; Bradfield, 6; Buckingham, 4; Chesterton, 12; Clown, 38; Cuckfield, 20; Dartford, 22; Guildford, 10; Hambleden, 8; Howden, 12; Llantrisant and Llantwit Fardre, 282; Maidstone, 10; Malmesbury, 4; Plomesgate, 4; Pontardawe, 10; Riccall, 6; St. Neots, 36; Smallburgh, 10; Sunderland, 128; Swavesey, 6; Taunton, 12; Thetford, 38; Thrapston, 8; Wakefield, 24; Wincanton, 36; Yeovil, 38.

"The 18th Century in London."

Mr. E. Beresford Chancellor, who is well-known by his works on the squares and private palaces of London and for his biographical accounts of British architects and sculptors, has written a general review of the 18th century under the title of "The 18th Century in London: An Account of its Social Life and Arts," which will be published shortly by Messrs. B. T. Batsford, Ltd. The book will be illustrated from original drawings and paintings, contemporary prints and engravings, which depict the life and appearance of a London which has vanished, and a series of photographs will represent the existing remains of the 18th century.

THE NATIONAL HOUSING AND TOWN-PLANNING COUNCIL.

THE Regional Housing and Town-Planning Conference organised by the National Housing and Town-Planning Council, which had been postponed from July 30, was held at the Royal Society of Arts, on Thursday and Friday last week, under the chairmanship of Mr. G. Marlow Reed, L.C.C.

The subjects for discussion covered a wide range of questions relating to housing, including the fixing of rents, general housing finance, the types of houses to be built, transport problems, the standards of construction, slum clearances, and town-planning.

A resolution was passed to the effect that, given wise development for transit facilities, it was unnecessary, except in special cases, for London local authorities to erect blocks of tenements, and that the health of the people could be best secured by providing self-contained cottages, with ample reserve for open spaces and playing fields. Speaking on this question, Mr. Henry R. Aldridge (Secretary to the Council) said that in Lancashire, Yorkshire, and the Midlands they had a centralised municipal sense, while in London there was a lack of unity. He hoped that the development of the Council's work would give central unity to London as regarded housing progress. The special need of normal humanity was the need of the family.

Mr. Orr (Director of Housing to the London County Council), said they had not the land for improving housing by spreading out cottage dwellings, and they must spread upwards. The resolution was carried.

The Conference agreed unanimously that the charges for transport to new housing areas should not be increased to such an extent as might materially prejudice development, and that a recommendation be sent to the Ministry of Transport urging that transport should be considered as part of housing, and not as a separate problem.

In calling for public support to adherence to good standards of construction and design, the Conference resolved that, in the interests of public economy, it was desirable that the actual cost of the houses already built by local authorities should be carefully analysed, and the result made known. On the motion of Mr. Abbot it was resolved that the standard of construction for private builders receiving subsidies should be the same as that for assisted schemes by local authorities.

Mr. Gibbon (Assistant Secretary, Ministry of Health) said he was impatient of hearing about difficulties and standards, and seeing so few houses actually going up. No local authority had any excuse for being behind the contracting stage. The delay, except perhaps in very exceptional cases, was due to incompetence or unwillingness. There were 200 schemes under way in the Metropolitan district, and even materials were not now the major difficulty. Even on schemes now under way there was a shortage of 40 per cent. of bricklayers, 40 per cent. of carpenters, and 30 per cent. of plasterers.

Resolutions were passed urging urban sanitary authorities to accelerate preparations for town-planning and to the effect that Greater London's arterial roads should not be less adequate than those of Liverpool and Birmingham. On this point a memorandum of the views of two leading experts was submitted —Mr. Brodie, City Engineer, Liverpool, and Mr. H. S. Stilgoe, Engineer to the Metropolitan Water Board, and formerly of Birmingham—both of whom held that 150 ft. should, as a rule, be secured for an arterial road, and that 120 ft. should be the absolute minimum.

The Cost of Building.

At the meeting of the Industrial Council for the Building Industry last week (reported on another page) it was announced that the Ministry of Health had appointed a Committee to consider the present high cost of building, and the Council was asked to appoint two representatives to sit on this Committee.

THE BUILDING TRADE.

THE ONLY WAY.—VI.

BY MAJOR E. A. PELLS, R.E., A.M.I.E.E., M.S.M.A.

COSTING AND EFFICIENCY.

ALTHOUGH improvements in plant, tools, and management methods, allied with the setting of standards based upon carefully observed data, all assist towards the ultimate improved results of operative effort, yet the undoubted importance of accurately allocated costs cannot be emphasised too much, as they provide the pulse of the work done and indicate just what is happening. Costs may, therefore, be very well described as control accounts.

To go thoroughly into the question of costing is beyond the scope of a short article, but I would lay stress upon the fact that general costing systems cannot be bought ready made to suit all circumstances; the costing system, therefore, should always be made to fit the job. Keeping this fact in mind, it would be well, however, to review several points of importance in costing as applied to work of a civil character. The correct allocation of costs is very difficult to procure on any work with such a diversity factor as building and kindred works. But it will be found that the more work is organised for improved production the more easily will the details required to ensure correct allocation be obtained. Costs must show what has happened, not what might have happened, and it is a good idea to provide a set of costs which might be designated "inefficiency costs," into which all items of undoubted waste expenditure are placed, as such will enable the inefficiencies leading to the waste to be quickly located and steps taken to prevent recurrences.

Under this heading of Inefficiency Costs might be shown all idle plant, as it is no fault of the job in hand that there is a quantity of plant which it is not necessary to use on it. Therefore only the costs of using the actual plant on the job should be charged to the costs of such, and the maintenance and depreciation of the idle plant charged to the Inefficiency Costs. In the same way, any large sum spent on maintenance of workshops or plant must be prevented from creeping into the costs of any job which happens to be in hand, as this is a charge which affects the employer more as a property owner, and if allowed to come into the costs of the work in hand will be sure to confuse the issue on some future occasion when the costs of that particular job are referred to.

There are certain charges which costing clerks will persist in averaging as being the easiest way out of a difficult question. This should not be allowed, as with a little trouble and insistence, these can always be definitely allocated to the job, thus providing for definite accuracy. The best means of ensuring that the necessary information is rendered by those responsible is to ask that it be entered on a suitable space on the job card, work sheet or time sheet, as the case may be, which is afterwards made the basis of payment; so that until the costing clerk has obtained his information and franked the card to the pay clerk the individual's pay is delayed. I have always adopted this method on any job where such difficulties have been experienced, and it is not very long before all trouble regarding proper allocations disappears and the costings become an accurate indication of what is happening.

It should be a definite instruction that, unless an expenditure subserves efficiently in some way the work to which it is allocated, it is either an incorrect allocation or wasted expenditure. Overhead charges on unemployed plant or workshops show a state of things which should not exist and should be transferred to the inefficiency costs. Other items which might well find a resting place under this heading are:—Waste of materials; unnecessary adjustments of plant; loss through accidents; extra payments for overtime where there is any question of the necessity for them. In this way direct attention is brought to bear on things which might otherwise escape notice in a general mass of costs.

It is essential that each particular job should be made to bear its fair burden, and not, as is now often the case, be saddled with some heavy charge which tends to favour the future or some other inefficient job. On the other hand, all equitable charges must be brought in, and on no account carried forward, as that would favour the present-day job at the expense of the future.

It is obvious that such carefully collated costs must, in conjunction with the data obtained by time-study, provide such a collection of material as will enable estimates to be made out with such accuracy that the possibility of big discrepancies between the estimated and actual costs of a job cannot arise. The necessity for accurate costing is very clear, for it is by means of carefully-compiled data and a further accurate analysis of it that those responsible are enabled to set up definite standards and improved methods. But after they are set up it is essential to have carefully recorded costs to facilitate their useful application.

RESEARCHES ON TIMBER.

THE importance of economy in the use of timber and assessing its qualities in these days of immature material so widely marketed, should render the work of the Forest Products Laboratory, Wisconsin, of much interest to timber-users. Experiments made on kiln drying are stated to have proved that when this process is conducted in the most suitable manner the objections often raised that the wood is rendered brittle and spoilt in other ways can be overcome, and material obtained which is slightly better than air-seasoned wood. Having regard to the present price of capital and the time taken to air-season, this deserves notice, as if the costs of artificial seasoning are not too high this should cheapen timber and place it sooner on the market.

These tests have been going on for ten years. The use of the microscope is mentioned as a valuable aid in determining timber species, and a case is cited in which a dispute relative to the kind of oak supplied under a contract was settled by this instrument. Definite proof of this kind, which can establish facts beyond question, is much cheaper and more expeditious, not to add more satisfactory, than an arbitration or a law suit. The specific gravity, or relative weight of the same bulk, of different woods is a very important factor in connection with strength, but has at present little practical use on the part of the timber-user. The same timber may show great variations, and an attempt is being made to produce grading rules based on specific gravity. Other activities of the laboratory have been directed to the investigation of ply wood, not merely as thin sheets, but for large built-up members. Tests are being made, for instance, on beams formed of five two-inch planks, and the effect of allowing defects in three such planks. Obviously, if such combinations prove successful, a great deal of small and cheap wood could be brought into service for construction at decreased cost. It is well known that wood constantly changes in shape and volume with variations in its moisture content, and the war has shown the necessity for obtaining absolute constancy in the case of aeroplane propellers. This is effected by sizing, covering with aluminium leaf about 1/15,000 of an inch thick, and then varnishing. The cost of this leaf is trifling, and experiments are being conducted on these lines for timber required for other special purposes, as the best varnish has been shown to be not waterproof.

Another department of the laboratory is investigating the preservation of timber from decay. The best method of injecting preservatives, and how different woods take them, has been studied, and this work is continuing. There is a great and useful field for inquiry into timber in many directions, and at its present price, coupled with decreased world supply and the immense demands of the paper trade, every effort should be made to encourage such work and give its results full publicity.

BIRMINGHAM BUILDING TRADES' EMPLOYERS' ASSOCIATION.

SPEAKING at the annual dinner of the Birmingham Building Trades' Employers' Association, held at the Grand Hotel, Birmingham, last week, Mr. S. Guy Sapcote (President) said that owing to the changes in the building industry during the past seven years the building trade employers would have to develop their organisations more keenly and look after the welfare of the operatives more than ever. The chief difficulty at the present time was with regard to output. Output could only be increased by fair dealing with the operatives, who in their turn must deal fairly by the employers, and adhere strictly to their agreements. Mr. Stephen Easten (President of the National Federation of Building Trade Employers) said that until the employers recognised their responsibilities to the operatives they would never be able to enforce the condition of getting value for wages. If the men worked with a will they could give practically double the present output, but there was no inducement for them to do more than they could get off with. The result was that the cost of building was becoming almost prohibitive, and as a remedy he suggested that output should be encouraged by the payment of bonuses.

THE INDUSTRIAL COUNCIL FOR THE BUILDING INDUSTRY.

PROPOSED RE-ORGANISATION OF THE BUILDING INDUSTRY.

A QUARTERLY meeting of the Industrial Council for the Building Industry was held at Montagu House, Whitehall, on Thursday and Friday last week, under the chairmanship of Mr. J. STORRS (Chairman of the Council).

Before the business of the meeting, the CHAIRMAN moved a vote of sympathy to the relatives of the late Mr. Wm. Bradshaw (Secretary of the National Federation of Building Trade Operatives and Joint Secretary of the Industrial Council) who, he said, was one of the greatest assets of the labour movement in the country, and whose death was a loss not only to the building industry but to the nation as a whole. The vote was seconded by MR. BARRON (Vice-Chairman), and passed in silence.

Management and Costs Committee's Report.*

After the minutes of the last meeting had been passed, the CHAIRMAN, in calling upon Mr. Thomas Foster to present the Report of the Management and Costs Committee (of which Mr. Foster is Chairman), said he had looked forward to that meeting with a certain amount of misgiving. The Industrial Council was set up to consider not only the problems of the building industry but what would be in the best interests of the country as a whole, and those who signed the majority Report of the Management and Costs Committee should consider very carefully the course they were going to recommend the Council to adopt. Many of the suggestions in the report constituted a complete upheaval of the custom in the building industry from its inception, and he was afraid that any attempt to force them upon the industry would lead to very serious trouble. The building industry—employers and operatives—were not yet educated sufficiently to go to the extent indicated in the Report, and if a fair percentage of employers could not be induced to agree to the proposals the result would be chaos. There was no doubt that at the present juncture not five per cent. of the employers in the country would support some of the extreme recommendations in the Report.

MR. THOMAS FOSTER, in moving the adoption of the Report, said the signatories to the majority report had no desire to force their views upon the Council. They would all agree that even some of the less controversial points could not be forced upon the industry at the present time; some of them were matters for education and propaganda. During the past two years there had probably been more strained feelings in industry than ever before, and there was not quite the same friendly spirit inside the Industrial Council. There was no doubt that the productivity of industry was suffering to a great extent through the lack of interest displayed by those connected with it, and he was convinced that until the human element was more fully considered all other remedies would be in vain. The most important part of the report was the psychological side of the recommendations, which were so interlocked with economic questions that it was difficult to say where one began and the other ended. The Committee found that the operatives were no longer satisfied with the relative standards of living or with the material rewards of labour. The more immediate suggestions were contained in Part I of the Report, and if they were agreed to the Committee suggested that they should be made obligatory and embodied in the working rules. On Part II there was undoubtedly a very acute division of opinion. Appendix 2 outlined a scheme for a Guild of Builders, which, he thought, represented the ideas of a very large number of men in the industry at the present time. It would be noticed that there was no place in the scheme for the employer at all, and if he came in it seemed that he would have to sever his connection with any other sphere of activity and become a servant of the Guild. Appendix I provided for "regulated private enterprise." They had got used to a great deal of regulation of industry imposed from outside, but some of them held that any regulation should come from inside the industry. The proposals in Appendix I certainly did not eliminate the employer, although his status would be altered; the underlying idea was working in the service of the community rather than for private profit. The building industry was in a demoralised condition; old motives and old methods were largely discredited, and there were signs of rapid change which some people thought might end in violent revolution. The Committee's scheme was one evolved from within the industry itself with the object of trying to re-create that spirit of goodwill which at one time obtained and which they hoped would obtain under the new conditions now proposed. He moved that the report be discussed with a view to the early application of the proposals outlined in Part I and a careful examination of the proposals contained in Part II.

MR. CROSS (Operatives) seconded the motion. It had been thoroughly proved, he said, that there existed no trade union regulations of any kind which suggested that the operatives should restrict output; the only cause of restriction of output was the natural fear on the part of the men that when the work upon which they were engaged was done they would be unemployed. There was no suggestion in the Report for the elimination of the employer, whose position had been considered right through; there would, however, be an effort to eliminate any employer who was in the industry solely for what he could make out of it. The industry could not go on as it had been going on since 1918—instead of getting better things were getting worse. There was nothing unreasonable in Part I of the Report, and it was not unreasonable to make those concessions a charge on the industry.

MR. ROLAND B. CHESSUM (Employers) said he entirely disagreed with the ideas set out in the Report to the extent that he believed that the way in which they had been reached was fundamentally wrong. He believed that if any individual or community endeavoured to do away with individual effort, or with recompense for individual merit, or to level down or level up (it would surely be levelling down), then they were doomed to disaster. The personal hope of personal reward for personal services could not be blotted out in any walk of life. If the Committee had confined itself to the terms of its reference there would not have been such a distinct cleavage amongst the members of the Council. He could not conceive that anything but a very small percentage of employers would endorse the ideas in the Report. He advised that the Report, having been presented, should be left. The employers were so absolutely opposed to the Report that he thought that if the matter were pressed to a conclusion the Council, which could not carry on with one side absent, would cease to exist. At one of the meetings of the Committee he was told that the Report provided for the elimination of the employers, but he for one, was not going to be an accessory to ending his career as a builder. Perhaps 95 per cent. of the building trade employers were in favour of the participation of the operatives in profits, and the Council might very well consider how that could best be achieved; it would never be achieved on the lines of the Report before them. He was absolutely opposed to the Guild movement as they knew it, and to anything which did away with individuality, personality, and reward for merit.

MR. STRANKS (Operatives) said he advised the Council not to adopt the Report, because although he welcomed the movement indicated in the Report, there should be more unity of purpose than had been displayed. The operatives did not want to do away with reward for merit or to destroy individuality. The present system destroyed individuality. It must not be overlooked that the major factor which had operated in building up the builders' businesses had been the operatives, and the operatives required a share in the management. Co-partnership and division of profits would not meet the case; the operatives thought they should have a voice in the management of their industry. Although the employers had their capital in the form of money, the operatives also had their capital in the form of their labour, and the one was useless without the other. The employers might run monetary risks, but they were nothing compared with the risk of life and limb which the operatives ran.

MR. S. SMETHURST (Employers) said he took exception to the view that there was any monopoly on the operatives' side of a desire to uplift the industry. None of the employers accepted the Report as presented, and in his opinion the desired end would not be achieved by the procedure outlined in the Report. Industries existed to provide the best possible conditions for those employed in them, but they could not be run by committees. No industry could succeed without the aid of the operatives, but neither could any industry be built up without the aid of the master mind. If it was said that the operatives had enriched a man who had succeeded in business, it must also be admitted that the operatives had lost the money of a man who failed. He had no opposition to the Building Guilds as they were at present constituted, but if the trade unions gave them any preferential treatment there would be trouble.

MR. ARMOUR (Operatives) said he was wholeheartedly in favour of Part II of the Report. The operatives demanded an equal status in industry with the employers—it was not a question of a little improvement in conditions. The Report involved the elimination of the employer as a capitalist, but not as a leader or organiser. The power of the capitalist must be destroyed. The only co-partnership the operatives could accept was co-partnership in which the operatives had equal status with the employer.

MR. HICKS (Operatives) said the operatives were of the opinion that a system whereby the operatives did not own the things they provided was fundamentally wrong. They objected to employers being able to control all the wealth. With regard to restriction of output, it was a fact that in the periods when they did the most work the operatives were worst off, and when they did least they were best off, as they were to-day.

MR. ANDERSON (Employers) said systems similar to that proposed had been tried before and had failed; for instance, in Australia they had been tried for the past ten years and had proved a dismal failure. The proposals were nothing more or less than the conscription of labour. The fundamental reason for all effort was the idea of gain, and before such a scheme could be satisfactory the whole basis of human nature would have to be changed.

MR. HODKIN (Employers) said the Report would not work if put into practice, and the employers as a whole could not accept it.

MR. STRANGE (Employers) said the proposals would tremendously increase the cost of building, but some of the operatives had the idea that there would be plenty of work irrespective of cost.

At this stage the discussion was adjourned until the following day.

On the resumption of the meeting on Friday MR. MOFFAT (Employers) said the Committee, in drafting its Report, had gone outside the terms of its reference. Appendix 2, Part 2, of the Report, relating to the Building Guilds, was now practically an accomplished fact, without the assent or dissent of the Council. Appendix I

* Part I of this Report was printed in full in *The Builder* for August 22, 1919. The discussion was commenced on Aug. 11 and 12 last (*The Builder*, August 20), when it was adjourned until last week.

was no less than an earthquake. With regard to Part I of the Report, there were many difficulties which did not appear to have been considered. It seemed to him that one of the biggest dangers to the industry at the present time was the lack of efficient bookkeeping. He recommended that Part I be reconsidered and that Part II be laid on the table.

MR. STRANKS (Operatives) moved an amendment that in view of the important issues raised, and the divisions of opinion reflected which would militate against the successful working of the proposals if adopted at the present juncture, the Management and Costs Committee be requested to reconsider the subject in the hope of finding more general agreement between the two interests represented on the Council.

MR. SMETHURST (Employers) seconded the amendment. If they were to reconsider the question, he said, he insisted that the situation be considered on the grounds which had given rise to the flamboyant remarks which had been made. The theory in the minds of many of the operatives was, in his opinion, based on a wrong foundation, and was bound to come to grief.

MR. PICKLES (Operatives), in opposing the amendment, said the present system of organisation led to nothing but a series of deadlocks. The operatives would have nothing to do with profit-sharing schemes, which simply meant that the workers worked harder for a penny and at the same time earned a pound for the employers. The workers themselves could see a better method of organising industry and were prepared to discuss their theory. The trade union leaders were not now spurring on the operatives but were holding them back, and experienced very great difficulty in restraining them. The Report contained an offer to alter the present bad system of competition and wastefulness to one of organised effort and the re-organisation of society.

MR. GIBSON (Operatives) said that so long as the employers failed to appreciate the principles laid down in the Report there would not be peace in the industry. The operatives would not allow employers to run the building industry and charge what they liked for the work done by the men. The operatives were perfectly fitted to take equal share with the employers in the conduct of the industry and to fix prices.

MR. FOSTER, replying to the discussion, said he was quite agreeable to the procedure intimated in the amendment being adopted. He heartily welcomed criticism of the Report, because they could only reach understanding after a full and honest expression of various points of view. In its discussion the Committee set out to find a way of increasing production and had therefore to find out the causes of the evils from which the industry suffered. They wanted to be able to produce buildings as cheaply as possible, and there were some in the building industry who believed that the producing power of the industry could be increased by as much as 50 per cent. There was also the question of maintaining the present high rate of wages without increasing the cost of building. It was obvious that if even a small increase in production could be secured, the building industry would be in a position to provide higher wages and at the same time to allow for a reduction in the cost of building. It was unfortunate that those who considered the question of increasing production nearly always forgot that the human factor was the most important factor. The recommendations in the Report would go very far towards removing many of the difficulties which the industry had to contend with, but the workmen wanted to be secured against the possibilities of recurring unemployment, which was bound to come about under the present system with even the best employer in the world. The proposals in the Report regarding unemployment pay should be adopted as soon as possible, and made a charge upon the industry as a whole. A great deal had been said about reward for merit, but it had to be admitted that while the employers' reward was an exceedingly large one, the operatives' reward was a very small one. The Committee contended that rewards for merit should be based on the value of services to the community. It was to be regretted that this basis of reward for merit was not always followed; for instance, many people had become exceedingly wealthy without rendering any service to the community, whilst men like Ruskin and William Morris were comparatively poor. It was agreed that the industry should provide a living for all connected with it, but it had frequently failed in this direction and was so failing at the present time. There were frequent periods of unemployment, when the operatives practically lived on charity or Government unemployment pay. Another function of industry was the provision of the things the community required, and in that direction industry had also failed to function properly. It had been stated that capitalists were naturally selected by nature to govern industry, but in whose interests were they acting? If there were no hope of profit in the industry, there would be very little industry carried on from the employers' side. The whole point of the Committee's recommendations was that profit was the dominating motive at present, and they suggested that the idea of service should actuate them. He suggested that the proposals, if adopted, did not mean that the present employers would be asked to commit suicide, but the proposals were intended to prevent the employers from being killed. The Committee had endeavoured to find a way out whereby the employers could devote their services to the industry for an adequate salary and lend their capital at adequate rates of interest. They believed that agreement upon parts of the scheme could be reached at an early date, and it was very necessary that such an agreement should be reached.

The amendment by Mr. Stranks was put to the meeting and passed, and the Report held over for further consideration.

Education Committee.

MR. SMETHURST submitted the report of the Education Committee, which stated that the scheme for apprentices should be brought into operation as soon as possible. One of the essential parts of the scheme was the establishment of local Building Trades' Apprenticeship Committees for the purpose of local action and co-operation, and the Committee was of opinion that the necessary machinery was not available under the organisation of the Council to enable these local Committees to be brought into being. In these circumstances, therefore, the Committee recommended that the Training Department of the Ministry of Labour be invited to co-operate with the Education Committee on the subject. The staff and organisation of the Training Department had been in close touch with the building industry for some time in connection with the administration of the scheme for interrupted apprenticeships, and for this purpose the Department had a staff of local officers in London, Birmingham, Manchester, Bristol, Leeds, Swansea, Newcastle and Glasgow. The following procedure of co-operation was accordingly recommended:—(i) The local officers of the Training Department should be authorised by the Education Committee to get into touch with the local associations of employers and of operatives in the various districts, thus preparing the way for a local joint conference; (ii) subsequently, the convening of such a conference should be undertaken by the Secretary to the Education Committee of the Industrial Council; (iii) where local circumstances are such as to render it desirable, representatives of the local education authority and of the local Juvenile Employment Committee should be invited to the conference, in addition to the representatives of the industry; (iv) these conferences should be attended by one or more representatives of the Education Committee, and for this purpose it had prepared a rota of members who could be called upon as required.

MR. STRANKS (Operatives) said in London the builders had turned a deaf ear to the apprenticeship proposals. It was remarkable that with all the talk about dilution of labour the employers had not been sympathetic towards increasing the number of apprentices.

The report was adopted.

Resettlement Committee.

The report of the Resettlement Committee, which contained the agreements between the Government and the Committee for expediting housing schemes, was presented by MR. WILSON.

MR. GIBSON (Operatives) said the painters could not admit of the admission of adult apprentices in their trade, in which there were already a number out of work. They were of the opinion that there was sufficient labour available for the work to be done on housing schemes so far as painting was concerned. If the painting work on the new houses had been carried out as it should have been there would have been more painters employed on housing, and he was surprised that the bricklayers had continued to work on the houses, which, as regarded the interiors, were often not fit for the working classes to live in. The recommendations of the Resettlement Committee were never acted upon, and he moved that the Committee be disbanded. This was seconded by MR. WALSH (Operatives).

MR. ARMOUR (Operatives) said there was plenty of room for more apprentices in the building trade. There were 5,000 stonemasons in Scotland, and only about 25 apprentices. There was nothing to fear in the adult apprenticeship scheme, because it stipulated that no more apprentices would be put into any trade than the number the trade union regulations allowed.

The Report was adopted.

Safety and Welfare Committee.

The report of the Safety and Welfare Committee, dealing chiefly with protection for wood-working machinery, was passed.

Election of Committees.

When the question of the re-election of Committees came up for consideration, MR. MACFARLANE said he thought it time that new blood was introduced into the personnel of the Management and Costs Committee; perhaps they had come to the end of their ideas. Also, it was not wise for the same men to serve on several committees.

MR. CHESSUM (Employers) suggested that the membership of the Committees should be spread as widely as possible throughout the membership of the Council. In view of the pressure upon his time and the attitude he had taken up on the question, he wished to retire from the Management and Costs Committee.

MR. MCPHERSON (Operatives) said the Committee had been instructed further to consider the matter, and if new members were elected they could not carry on where the others left off.

Ultimately the Committee was re-elected as constituted, with Mr. Strange in the place of Mr. Chessum.

The Safety and Welfare Committee was re-elected *en bloc*, and the Education Committee was re-elected with one or two alterations.

Other Business.

On the motion of the United Operative Stone Masons Association of Scotland, a resolution was passed to the effect that the Safety and Welfare Committee be instructed to consider the question of the inclusion of stone masons in the Silicosis Act.

MR. MCPHERSON (Operatives) said the death-rate from dust on the lungs was probably higher in the stone trade than any other.

The resolution was adopted.

The Chairman announced that he had received a notification from Mr. A. G. White (Joint Secretary) that owing to the pressure of business connected with the National Federation of Building Trades' Employers he would be unable to continue to act as Joint Secretary to the Industrial Council after the end of the present year. It was decided that the matter of the appointment of a secretary be referred to the Administrative Committee, and that, if

possible, one official be appointed to carry out the duties, instead of the former arrangement of joint secretaries representing both the employers and operatives.

The Next Meeting.

The next quarterly meeting was fixed to take place in London on February 10 and 11, 1921.

STAFF DINNER.

ONE came away from the dinner given by Messrs. Higgs & Hill, Ltd., of Crown Works, Vauxhall, to their staff at the Holborn Restaurant, on Saturday last, with the feeling that here, at any rate, the "team spirit" in industry was an active force, and that were similar enthusiasm displayed by both management and employees throughout the trade for the success of individual undertakings and the craft of building many of the difficulties which at present beset the industry would be smoothed over.

Mr. Wm. Higgs, who presided, in proposing the loyal toasts, referred with pride to the long service of many of the employees, several of whom had been with the firm for over fifty years, and in some cases three generations of one family were engaged at Crown Works at the present time.

Mr. C. H. Dewey, proposing "The Prosperity of the Craft," gave a humorous outline of the history of architecture, in the course of which he suggested that had the Parthenon and other ancient masterpieces of architecture been erected by Messrs. Higgs & Hill, they would have been standing in their original form and beauty to this day!

Mr. Ernest J. Brown, in responding, after referring to the altered relations between employers and employed as compared with a generation ago, said the houses now being erected under the Government housing schemes gave no opportunity for the builder to display his craft to the best advantage, and it was a terrible disaster to see the beautiful countryside made hideous by the monstrosities perpetrated by the Ministry of Health. It was to be regretted that at the present time, when architects should be allowed to give of their best, their designs should be mutilated by a Government department.

Mr. J. Cameron, in proposing the toast of "The Architects and Surveyors," said that had the Government taken full advantage of the services of architects during the war the taxpayers would have been saved a great deal of money, and now the Ministry of Health was cutting to pieces architects' designs for the new houses. Mr. F. E. Williams, responding for the architects, said architects had very little to do with the new houses; they might design them and make them exceedingly attractive, but after the Ministry of Health had done with them there was very little of the original design left. Mr. H. J. West responded for the surveyors. The toast of "The Visitors" was proposed by Mr. W. Matthew Hill, and responded to by Mr. J. Lancaster.

The "Magnet" multi-way pedestal heater, manufactured by the General Electric Co., Ltd., 67, Queen Victoria-street, E.C., warms the occupants of a room—not the air or furniture—by beams of radiant heat passing through the air without heating it, thus leaving it in its natural humidified state. With these heaters it has been found that for equal degrees of comfort 50 per cent. less electricity is used than in the ordinary way. They are also easily adaptable for other purposes, such as toasting, boiling, frying, stewing, &c., only the manipulation of a thumb-screw being required to fix the reflector in a horizontal or in any other position desired. It is claimed that they will boil a pint of water in ten minutes, and toast two pieces of bread (both sides) in four minutes, and that each unit consumes little more than half a unit of electricity (600 watts per hour). Each heater has a polished copper reflector, which projects a beam of heat. The reflector is easily accessible for cleaning by snapping off the wire guard, or for complete removal by in turn snapping back the hinged spring clips.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the building trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur :—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Bricklayers' Labourers.	Plasterers'
Aberdare	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Accrington	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Altrincham	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Ashton-under-Lyne	2/4	2/4	2/4	2/4	2/4	2/5	2/4	2/0–2/0½	
Barnsley	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Barrow-in-Furness	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Barry	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Bath	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Bedford	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Birkenhead	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0½	
Birmingham	2/4	2/4	2/4	2/4	2/4	2/5	2/4	2/1	
Bishop Auckland	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Blackburn	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Blackpool	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Bolton	2/4	2/4	2/4	2/4	2/4	2/3	2/4	2/0–2/0½	
Bournemouth	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Bradford	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Bridgwater	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/7½	
Brighton	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Bristol	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Burnley	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Burton-on-Trent	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Bury	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Cambridge	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Cardiff	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Chatham	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Chelmsford	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Cheltenham	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Chester	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½–1/11	
Chesterfield	2/4	2/4	2/4	2/4	2/4	2/–	2/4	2/1	
Colchester	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Coventry	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Crewe	2/2½	2/2½	2/2½	2/2½	2/2½	2/4	2/4	1/10½–1/11	
Darlington	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Derby	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Doncaster	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Dudley	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½	2/4	1/11½	
Durham	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
East Glam. and Mon. Valleys	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Exeter	2/–	2/–	2/–	2/–	2/–	2/–	1/11	1/9	
Folkestone	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Gloucester	2/–	2/–	2/–	2/–	2/–	2/–	1/11	1/9	
Grantham	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Grays	2/4	2/4	2/4	2/4	2/4	2/4½	2/3	2/1	
Grimsby	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Great Yarmouth	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Guildford	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Halifax	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Harrogate	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Hartlepools	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Hastings	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Hereford	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Huddersfield	2/–	2/–	2/–	2/–	2/–	2/–	1/11	1/9	
Hull	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Ipswich	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Lancaster	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Leamington Spa	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Leeds	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Leicester	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Lichfield	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/1	
Lincoln	2/4	2/4	2/4	2/4	2/4	2/–	2/4	2/0½	
Liverpool	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Llanelly	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
London	2/4	2/4	2/4	2/4	—	2/4½	2/3	2/1	
Loughborough	2/4	2/4	2/4	2/4	2/4	2/4½	2/4	1/9	
Luton	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/8	
Maidstone	1/11	1/11	1/11	1/11	1/11	1/11	1/11	2/0–2/0½	
Manchester	2/4	2/4	2/4	2/4	2/4	2/3	2/4	1/11½	
Mansfield	2/2½	2/2½	2/2½	2/2½	2/2½	2/3	2/2½	2/1	
Merthyr Tydfil	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Middlesbrough	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Newcastle-on-Tyne	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Newport, Mon.	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Northampton	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Norwich	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Nottingham	2/4	2/4	2/4	2/4	2/4	2/4½	2/4	2/1	
Oakham	2/1	2/1	2/	2/1	2/1	2/1	2/1	1/10	
Oldham	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Oxford	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Plymouth	2/1	2/1	2/1	2/1	2/1	2/1	2/–	1/10	
Pontypridd	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Portsmouth	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Preston	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Reading	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Rochdale	2/4	2/4	2/4	2/4	2/4	2/–	2/–	2/0–2/0½	
Rochester	1/11	1/11	1/11	1/11	1/11	1/11	2/5	2/4	
Rugby	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11	1/11½	
St. Albans	2/–	2/–	2/–	2/–	2/–	2/–	2/2½	2/2½	
St. Helen's	2/4	2/4	2/4	2/4	2/4	2/4	2/–	1/8	
Scarborough	2/2½	2/2½	2/2½	2/2½	2/2½	2/4	2/4	2/0–2/0½	
Sheffield	2/4	2/4	2/4	2/4	2/4	2/2½	2/4	1/11½	
Shrewsbury	2/2½	2/2½	2/2½	2/2½	2/2½	2/4	2/4	2/1	
Southampton	2/–	2/–	2/–	2/–	2/–	1/10½	2/2½	1/9	
Southend-on-Sea	2/0½	2/0½	2/0½	2/0½	2/0½	2/–	2/–	1/9	
Southport	2/4	2/4	2/4	2/4	2/4	2/0½	2/4	1/11½	
South Shields	2/4	2/4	2/4	2/4	2/4	2/4	2/–	2/0–2/0½	
Stockport	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Stockton-on-Tees	2/1	2/4	2/4	2/4	2/4	2/4	2/4	1/11½	
Stoke-on-Trent	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/2½	
Stroud	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½	2/–	1/9	
Sunderland	2/–	2/–	2/–	2/–	2/–	2/–	1/11½	2/1	
Swansea	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Taunton	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Torquay	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Wakefield	2/–	2/–	2/–	2/–	2/–	2/–	2/–	2/1	
Walsall	2/4	2/4	2/4	2/4	2/4	2/4	2/4	1/11½	
Warrington	2/2½	2/2½	2/2½	2/2½	2/2½	2/3½	2/2½	2/0–2/0½	
West Bromwich	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Wigan	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Windsor	2/4	2/4	2/4	2/4	2/4	2/4	2/4	1/9	
Wolverhampton	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/10½	
Worcester	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
York	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this number. Contracts vi; Competitions iv; Public Appointments lxxvii; Sales by Auction lxxx. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

BUILDING AND PAINTING.

NOVEMBER 19.—**Feltham.**—HOUSES.—Erection of 50 houses at Bedfont-lane, Feltham, Middlesex, for the U.D.C. Mr. J. H. Sandy, Clerk to the Council, Council Offices, High-street, Feltham, Middlesex. Deposit £2 2s.

NOVEMBER 20. — **Chapel-en-le-Frith.** — CHIMNEY.—Erection of a buff brick chimney, for the Board of Guardians. Mr. J. B. Boycott, Clerk, Union Offices, Chapel-en-le-Frith.

NOVEMBER 20. — **Hove.** — BUILDINGS. — Erecting building for refuse crushing machinery, boundary walling, stores, garage, fencing, drainage, &c., and other works, in connection, for the T.C. Borough Surveyor (Mr. H. H. Scott), Town Hall, Hove. Deposit £1 1s.

NOVEMBER 20.—**Poole.**—HOUSES.—Erection of 14 houses at Lytchett Matravers, 6 at Lytchett Minster, and 10 houses at Broadstone, for the R.D.C. Mr. G. H. Seymour, architect, Longfleet, Poole.

NOVEMBER 20.—**Todmorden.**—HOUSES.—Erection of 88 houses at Royd, for the T.C. Mr. J. A. Heap, Borough Engineer, Municipal Offices, Rise-lane, Todmorden.

NOVEMBER 22.—**Bradfield.**—HOUSES.—Erection of one or two pairs of cottages near Hill Foot Farm, Bucklebury, for the R.D.C. Mr. J. R. Greenaway, 138, Friar-street, Reading. Deposit, £1 1s.

NOVEMBER 22.—**Burntisland.**—HOUSES.—Erection of 12 blocks each containing two houses, for the T.C. Burgh Surveyor, Burntisland.

NOVEMBER 22.—**Forehoe.**—HOUSES.—Erection of 22 houses and road-making at Wymondham, for the R.D.C. Mr. George J. Skipper, architect, 7, London-street, Norwich.

NOVEMBER 22.—**Glasgow.**—TAR STILLS.—For excavator, concrete and brickwork required in connection with the installation of new tar stills, &c., at the Provan Chemical Works, for the T.C. Mr. W. A. Walmsley, Manager, Chemical Works Department, 20, Trongate, Glasgow.

NOVEMBER 22.—**Leeds.**—HOUSES.—Erection of 112 houses on the Hawksworth Wood Estate, Kirkstall, and 204 houses on the Wyther House Estate, Armley, for the T.C. Mr. W. T. Lancashire, City Engineer, Municipal Buildings, Leeds. Deposit, £1 1s.

NOVEMBER 22.—**Leyton.**—PAINTING, &C.—Cleansing, painting, and repairs at the Electric Light and Power Station, for the U.D.C. Mr. John H. Jacques, architect, 2, Fen-court, Fenchurch-street, E.C. 3. Deposit £1.

NOVEMBER 22.—**Malton.**—HOUSES.—Erection of 10 houses at Swinton, for the R.D.C. Messrs. C. H. Channon & Son, architects, Market-street, Malton. Deposit, £1 1s.

NOVEMBER 22.—**Merioneth.**—HOUSES.—Erection of (*a*) Two Farm cottages and buildings at Gilar Wen, Harlech, and (*b*) for three farm cottages and buildings at Morfa Mawr, Llanbedr, for the Merioneth C.C. Mr. R. C. Jones, Architect, Caerblaidd Offices, Blaenau Festiniog.

NOVEMBER 22.—**Ruthergien.**—PLUMBERS' WORK.—For the "plumber work" in connection with erection of 54 houses, for the T.C. Mr. Hugh Inglis, Burgh Engineer, Town Hall, Ruthergien.

NOVEMBER 22.—**Truro.**—HOUSES.—Erection of eight houses at St. Veryan, for the R.D.C. Mr. Alfred J. Cornelius, architect, 81, Lemon-street, Truro.

NOVEMBER 22.—**Westslade.**—HOUSES, &C.—Construction of roads and sewers, and also construction of 100 houses, in concrete or brickwork, for the Dudley Housing Schemes, for the U.D.C. Messrs. Harrison, Ash & Blythe, 22, Ellison-place, Newcastle-upon-Tyne.

NOVEMBER 23. — **Belford.** — HOUSING, &C. — For housing, road-making, and sewers at Belford, Bamburgh, Beadnell, and North Sunderland, for the R.D.C. Messrs. Fatkin & Vinycomb, architects, 77, Westgate-road, Newcastle. Deposit, £3 3s.

NOVEMBER 23.—**Bourne.**—SANATORIUM BUILDING.—Erection of a 12-bed pavilion for consumptives, for the R.D.C. Surveyor's Office, West-street, Bourne. Deposit, £1 1s.

NOVEMBER 24.—**East Cowes.**—HOUSES.—Erection of 30 houses for the U.D.C. Housing Scheme. Mr. Reginald Jolliffe, architect, Shooters Hill, Cowes. Deposit £2 2s.

NOVEMBER 24.—**Hammersmith.**—PAINTING.—For painting and decorating works, for the Electricity Department. Mr. R. Hampton Clucas, Borough Engineer, Town Hall, Hammersmith, W. 6.

NOVEMBER 24.—**Wandsworth.**—HOUSES.—Erection of 54 houses of various types on the first portion of the Watney Estate, for the B.C. Mr. Geo. Leonard Elkington, architect, 7, Laurence Pountney-hill, London, E.C. Deposit, £1 1s.

NOVEMBER 25.—**Canterbury.**—HOUSES.—Erection of 68 houses (28 parlour and 40 non-parlour type), for the T.C. Mr. F. H. Dore, architect, 25, Watling-street, Canterbury. Deposit, £2 2s.

NOVEMBER 25.—**Macduff.**—HOUSES.—Erecting 10 block type "B" semi-detached cottages at Duff-street, for the T.C. Messrs. George Sutherland & Clement George, architects, Aberdeen.

✱NOVEMBER 26.—**East Sussex.**—Erection of Army Huts acquired by the Council; alteration of existing buildings; erection of an electric cottage supply plant and wiring; drainage and outfall works. Mr. H. Phibbs, A.R.I.B.A., architect, Severig Chambers, High-street, Lewes.

NOVEMBER 26.—**Glasgow.**—PAINTING.—For painter work in the Education Offices, 129, Bath-street, for the T.C. Mr. J. Clark, Director of Education, Education Offices, Glasgow. Deposit, 10s. 6d.

NOVEMBER 26.—**Goring Reading.**—COTTAGES.—Erection of 5 pairs of cottages in Goring and Whitchurch. Mr. G. P. Turner, 7, Broad-street, Bloomsbury, London, W.C. Deposit £1 1s.

NOVEMBER 27.—**Crossgates.**—PLASTER WORK.—For plaster and cement work in connection with proposed new school, Crossgates, for the Fife Education Authority. Mr. C. R. Douglas, surveyor, 15, East Port, Dunfermline. Deposit, £1 1s.

NOVEMBER 27.—**Halifax.**—HOUSES.—Erection of 366 houses at Holmfield and Boothtown, for the T.C. Mr. James Lord, Borough Engineer, Halifax.

NOVEMBER 27.—**Maryport.**—HOUSES.—Erection of 70 houses, roads and sewers, on Camp-road Site, for the U.D.C. Mr. H. Oldfield, Architect, Workington.

NOVEMBER 29.—**Barlby.**—HOUSES, &C.—Erection of three houses and two police cells at Barlby, near Selby, for the East Riding C.C. County Architect, County Hall, Beverley. Deposit, £1 1s.

NOVEMBER 29. — **Starbeck.** — ALTERATIONS. — For alterations and additions to the Goods Warehouse at Starbeck, for the North Eastern Railway Co. Mr. Arthur Pollard, architect, York.

NOVEMBER 30.—**Dunbarton.**—HOUSES.—Erection of forty blocks of 104 houses at Alexandria and 15 blocks of 44 houses at Renton, for the C.C. Mr. Joseph Weekes, architect, 201, Bath Street, Glasgow. Deposit £1 1s.

NOVEMBER 30.—**Middlewich.**—HOUSES.—Erection of 18 houses, for the U.D.C. Mr. F. W. Stocks, surveyor, Town Hall Chambers, Middlewich. Deposit, £2 2s.

NOVEMBER 30.—**Uwchaled.**—HOUSES.—Erection of 57 houses on various sites, for the R.D.C. Messrs. Berrington, Son & Watney, architects, Prudential-chambers, Wolverhampton. Deposit, £2 2s.

DECEMBER 1.—**Cardiff.**—REPAIRS, &C. — Execution of ordinary works and repairs to the buildings in Cardiff, in charge of H.M. Commissioners of Works. Director of Contracts, H.M. Office of Works, Storey's-gate, Westminster.

DECEMBER 1.—**Tendring.**—HOUSES.—Erection of 10 houses at Thorpe, for the R.D.C. Messrs. Tomkins, Homer & Ley, architects, Frinton-on-Sea. Deposit, £1 1s.

✱DECEMBER 3. — **Weymouth.** — POST OFFICE.—Extension of the Post Office at Weymouth. Secretary, H.M. Office of Works, Storey's Gate, Westminster, S.W.1. Deposit £1 1s.

DECEMBER 4. — **Oswestry.** — HOUSES, ROADS, SEWERS.—Erection and completion of 33 houses on Glyn Ceiriog and Pontfadog sites, construction of roads, footpaths, sewers, &c, for the Chirk R.D.C. Messrs. Berrington, Son & Watney, Prudential Chambers, Wolverhampton. Deposit £2 2s.

DECEMBER 5. — **Scotland.** —PAINTING, ETC.—Execution of painters', paperhangers' and gilders' work in connection with the ordinary works and repairs to buildings in charge of H.M. Commissioners of Works. Districts during one year, from January 1, 1921. Director of Contracts and Labour, H.M. Office of Works, Storey's Gate, Westminster.

✱DECEMBER 6.—**Bicester.**—HOUSES.—Erection of 20 houses on the Buckingham-road site, for the U.D.C. Mr. H. W. Smith, M.S.A., architect, 57, High-street, Oxford. Deposit, £1 1s.

✱DECEMBER 6.—**London.**—Extension of the North Telephone Exchange, Barnsbury-grove, N. H.M. Office of Works, Storey's Gate, Westminster, S.W.1. Deposit, one guinea.

DECEMBER 6. — **Mold.** — HOUSES. — Erection of 54 houses, for the U.D.C. Mr. F. A. Roberts, architect, Earl Chambers, Mold. Deposit, £3 3s.

DECEMBER 7.—**Gosforth.**—ALTERATIONS.—Alterations and extensions to the Fire Brigade Station, for the U.D.C. Mr. George Nelson, Surveyor, Council Chambers, Gosforth.

✱DECEMBER 8.—**Godstone.**—WORKING CLASS DWELLINGS.—Erection of 6 working class dwellings at Dormans Land and 12 at Lunghurst-road, Woldingham, for the R.D.C. Messrs. Hayward & Maynard, architects, 14, John-street, Adelphi, W.C.2. (Dormans Land Site). Mr. Granville Streatfield, architect, 24, Old Buildings, Lincoln's Inn, W.C.2 (Woldingham Site). Deposit £2 2s.

DECEMBER 17.—**Monmouthshire.**—HOSPITAL.—Erection of a hospital for consumptives at Pontypool-road, Monmouthshire, for the King Edward VII Welsh National Memorial Association. Mr. Edwin T. Hall, F.R.I.B.A., and Mr. E. Stanley Hall, M.A., F.R.I.B.A., of 54, Bedford-square, London, W.C. 1. Deposit, £5.

DECEMBER 21.—**Clutton.**—HOUSES.—Erection of six houses on Temple Cloud. Messrs. Petter & Warren, architects, 74, Henford, Yeovil.

NO DATE.—**Biddulph.**—HOUSES.—Erection of 42 Type "A" Urban and 44 Type "B" Urban cottages, for the U.D.C. Mr. S. Gibson, Surveyor, Public Hall, Biddulph.

NO DATE.—**Manchester.**—HOUSES.—Erection of 50 houses in Manchester District. Messrs. W. A. Richards & Co., Ltd., 11, Dumfries-place, Cardiff.

FURNITURE, MATERIALS, etc.

NOVEMBER 20.—**Bradford.**—MATERIALS.—Supply of tramway materials for the Tramways Committee. Mr. R. H. Wilkinson, General Manager, 7, Hall Ings, Bradford.

NOVEMBER 20.—**Farnham.** — TAR. — Supply of approximately 25,000 gallons dehydrated tar, to the U.D.C. Mr. J. W. Wright, Clerk, Council Offices, Farnham.

NOVEMBER 22.—**Horsham.**—ROAD MATERIALS.—Supply of road materials and cartage, for the West Sussex C.C. Mr. H. W. Bowen, County Surveyor, North-street, Horsham.

NOVEMBER 22.—**London.**—MATERIALS.—Supply to the Burma Railways Company of 3,000 eyebolts and 480 coils of strand wire for fencing. Mr. W. Home, Managing Director, 199, Gresham House, Old Broad-street, London, E.C. 2. Charge, £1.

NOVEMBER 24. — **Dublin.** — RAILWAY STORES. — Supply of various stores to the Great Southern and Western Railway (Ireland) Co. Stores Superintendent, General Stores Dept., G.S. & W. R., Inchicore, Dublin.

NOVEMBER 24.—**Hammersmith.**—Supply of materials required and for carrying out the work of painting and decorating the interior of the office buildings at the Council's Electricity Works, 85, Fulham Palace-road, W.6. Mr. Leslie Gordon, Town Clerk, Town Hall, Hammersmith, W.6.

NOVEMBER 24. — **Skegness.** — TILES. — Supply of concrete roofing tiles for the housing scheme of the U.D.C. Mr. R. H. Jenkins, Surveyor, Council Offices, Skegness.

NOVEMBER 24.—**West Hartlepool.**—MATERIALS.—Supply to the T.C. of road materials and sewer pipes. Mr. Nelson F. Dennis, Borough Engineer, Municipal Buildings, West Hartlepool.

NOVEMBER 25.—**Doncaster.**—RAILWAY STORES.—Supply of stores to the Great Northern Railway Company. Mr. Weeks, Stores Superintendent, Doncaster.

NOVEMBER 25.—**Lambeth.**—ROAD MATERIALS.—Supply of flints, ballast, sand, &c., to the B.C. Mr. H. E. Anderson, Borough Engineer, Lambeth Town Hall, Brixton Hill, S.W. 2.

NOVEMBER 25.—**Newcastle-on-Tyne.**—STORES.—Supply of stores to the Tyne Improvement Commission. Mr. J. McD. Manson, General Manager, Commissions Office, Berwick-street, Newcastle-on-Tyne.

NOVEMBER 25.—**Nottingham.**—MATERIALS.—Supply of materials to the Works and Ways Committee of the T.C. Mr. A. Brown, City Engineer, Guildhall, Nottingham. Deposit 5s.

NOVEMBER 26.—**Warrington.**—RAILWAY STORES.—Supply of stores to the Cheshire Lines Committee. Stores Superintendent, Cheshire Lines, Warrington.

NOVEMBER 27.—**Wakefield.**—FURNITURE.—Supply of school furniture, chairs, tables, desks, &c. to County Council of the West Riding of Yorkshire (Central Stores Department). Stores Manager, Central Stores, Cliff-lane, Wakefield.

NOVEMBER 30.—**London, S.W. 1.**—Supply of rain water goods. The Secretary, H.M.O.W., Storey's Gate, Westminster, S.W.1.

DECEMBER 9.—**Aberdeen.**—STORES.—Supply of various stores to the Great North of Scotland Railway Co. Stores Superintendent, 80, Guild-street, Aberdeen. Charge, 1s. per form (32).

DECEMBER 11.—**Enniskillen.**—RAILWAY STORES.—For supply of stores to the Sligo, Leitrim and Northern Counties Railway Co. Mr. J. Duff, Secretary's office, Enniskillen. Charge 1s. per form of which there are 36.

JANUARY 31.—**Johannesburg.**—SANITARY FITTINGS.—Supply of sanitary fittings for a public convenience, Union Ground, Johannesburg. Messrs. E. W. Caring & Co., St. Dunstan's-buildings, St. Dunstan's-hill, London, E.C. 3. Deposit, £1 1s.

ENGINEERING, IRON AND STEEL.

NOVEMBER 20.—**Edinburgh.**—PIPES.—Supply of about 2,000 tons of dry sand cast-iron pipes, 3 in. to 16 in. in diameter, for the T.C. Messrs. J. & A. Leslie & Reid, engineers, 12, St. Giles-street, Edinburgh.

NOVEMBER 22.—**Eccles.**—LAUNDRY MACHINERY.—Supply and fixing of laundry machinery at the Public Baths, Cromwell-road, Patricroft. Mr. Thomas S. Picton, Town Hall, Eccles.

NOVEMBER 23.—**Rhondda.**—STEEL FLOORING, &C.—(1) Supply of 20 tons of pressed steel flooring, (2) Supply of 6 tons of light parapet girders, for the U.D.C. Mr. E. Hazledine Barber, Surveyor, Council Offices, Pentre, Rhondda.

NOVEMBER 24.—**London, &c.**—VARIOUS WORKS.—(*a*) Alterations and extensions to the electric lighting and power installations in the motor workshops at the Mead Ambulance Station, Carnwath-road, Fulham. (*b*) Installation of a forced circulation domestic hot water supply apparatus at the Eastern Hospital, The Grove, Homerton, E. 9. (*c*) Installation of a new continuous drying machine in laundry at the Leavesden Mental Hospital, King's Langley, Herts, for the Metropolitan Asylums Board. Office of the Board, Embankment, E.C. 4. Deposit, £1.

NOVEMBER 30.—**Bristol.**—DOCK.—The Bristol Docks Committee invite tenders for the lease of its dry dock on the floating harbour, near Cumberland-road, subject to the conditions that the lessee shall undertake the restoration and improvement of the dock (including the provision of a new caisson). Chief Engineer, Avonmouth Docks, Bristol.

NOVEMBER 30.—**London.**—RAILWAY MATERIAL.—Supply to the South Indian Railway Co. of (1) Copper plates; (2) superheater elements; and (3) steel tyres Company's offices, 91, York-street, Westminster, S.W.1. Charge, 10s. for (1) and (2): and £1 for (3).

DECEMBER 1.—**London.**—STRUCTURAL STEELWORK.—Supply to the Assam-Bengal Railway Company of structural steelwork, galvanised work, &c., for shops extension. Offices of the Company, Bishopsgate House, 80, Bishopsgate, E.C. 2

DECEMBER 1.—**Manchester.**—ENGINEERING WORKS.—Supply of engineering labour-in-day work in the Manchester District for one year, for H.M. Commissioner of Works. Director of Contracts, H.M. Office of Works, Storey's Gate, Westminster.

✱DECEMBER 7.—**Wandsworth.**—ELECTRIC PASSENGER LIFTS.—Erection and provision of two new electric passenger lifts at the St. John's-hill Infirmary, Wandsworth, S.W. 18, for the Guardians of the Wandsworth Union. Clerk of Works at the Infirmary.

DECEMBER 9.—**British Columbia.**—DOCK.—Construction of dry dock at Esquimault, for the Department of Public Works, Ottawa. Enquiry Office, Department of Overseas Trade, 35, Old Queen-street, S.W.

DECEMBER 14.—**Wallasey.**—COKE-HANDLING PLANT, &c.—For (1) Supply and erection of complete coke-handling plant at the Corporation Gasworks. (2) Supply and erection of two electrically-operated capstans. Mr. J. H. Crowther, Gasworks, Limekiln-lane, Wallasey.

JANUARY 4.—**Dublin.**—PAVING MATERIAL PLANT.—Supply and erection of plant for the manufacture of tar macadam, asphalte concrete and asphalte surface coat, for the T.C. Mr. Patrick Tobin, Secretary, Paving Committee, City Hall, Dublin.

FEBRUARY 14, 1921.—**Palestine, &c.**—CEMETERY CONSTRUCTION.—The Imperial War Graves Commission invite tenders for the construction of (*a*) four cemeteries in Palestine, (*b*) 26 cemeteries at Anzac (Gallipoli), (*c*) 14 cemeteries in Macedonia. Director of Works, Imperial War Graves Commission, 33–36, Baker-street, W. Deposit £10.

MARCH 4.—**Bombay.**—REFUSE DESTRUCTOR.—Manufacture, erection and equipment of a refuse destructor within the City for the incineration of 200 tons of refuse per day. Sir John Wolfe Barry, Lyster & Partners, Dartmouth House, 2, Queen Anne's Gate, Westminster, S.W. 1. Charge, 5s.

ROAD, SANITARY, AND WATER WORKS.

NOVEMBER 20.—**Chippenham.**—STREET WORKS.—Taking up the existing and laying new paving, kerbing and channelling, &c., in Bath-road, Town Bridge and Marshfield-road, for the U.D.C. Mr. A. E. Adams, Borough Surveyor, High-street, Chippenham. Deposit, £1 1s.

NOVEMBER 22.—**Dewsbury.**—SEWAGE DISPOSAL WORKS.—Construction of precipitation tanks, the culverting of Pildacre Beck, and other work in connection with the construction of sewage disposal works at Mitchell Laithes, for the Dewsbury T.C. Messrs. J. Diggle & Son, 14, Brown-street, Manchester. Deposit £3 3s.

NOVEMBER 22.—**Falkland.**—SEWER.—Construction of sewer and water main at the site of the proposed housing scheme, for the T.C. Mr. A. D. Haxton, architect, Leven. Deposit, £1 1s.

NOVEMBER 22.—**Horsham.**—ROADS.—Supply on hire of steam rollers, for work during the season ending March 31, 1922, for the West Sussex C.C. Mr. H. W. Bowen, County Surveyor, North-street, Horsham.

NOVEMBER 22.—**Kirkcaldy.**—WATER MAIN.—Laying and jointing about five miles of 8 in., 6 in., 4 in., and 2½ in. cast-iron pipes, for the District Water Works. Messrs. J. & A. Leslie & Reid, engineers, 72A, George-street, Edinburgh. Deposit £1.

NOVEMBER 22.—**Manchester.**—ROADS, &c.—For dressing and paving various passages, for reconstruction of portions of the roadways of several streets, for the T.C. Paving, &c., Department, Town Hall, Manchester.

NOVEMBER 23.—**Loughborough.**—WATER MAINS.—Providing and laying about 584 yds. of 4 in. cast iron mains, &c., for the T.C. Mr. A. H. Walker, Waterworks Engineer, Town Hall, Loughborough. Deposit, £2 2s.

NOVEMBER 23.—**Tottington.**—ROADS, &c.—Construction of roads and sewers in connection with the housing scheme, for the U.D.C. Mr. L. Kenyon, Surveyor, Town Hall, Tottington. Deposit, £1 1s.

NOVEMBER 25.—**Plymouth.**—ROADS AND SEWERS.—Construction of about 1½ miles of roads and 3½ miles of sewers in connection with the lay-out of about 37 acres, for the T.C. Mr. T. Peirson Frank, Borough Engineer, Municipal Offices, Plymouth. Deposit, £2 2s.

NOVEMBER 26.—**Rye.**—WELLS.—Sinking of five wells (three in the parish of Icklesham and two at Iden, Sussex), for the R.D.C. Surveyor, 1B, Havelock-road, Hastings.

NOVEMBER 27.—**Lumphinnans.**—SEWERS.—Construction of new sewers at Lumphinnans, for the Kirkcaldy District Committee of the Fife C.C. Messrs. Carter & Wilson, 51, Queen-street, Edinburgh. Deposit, £1 1s.

NOVEMBER 27.—**Tadcaster.**—SEWERS.—For laying sewers and water mains in various parishes, for the R.D.C. (four contracts). Mr. H. M. Driver, surveyor, Garforth, near Leeds; Mr. E. Thackray, Water Inspector, Station-road, Kippax, near Leeds.

NOVEMBER 29.—**Edinburgh.**—ROADS AND SEWERS.—Construction of Sewers and roads—Bangholm Housing Area, Ferry-road, and roads at Gorgie Housing Area (Northern Section), for the T.C. Mr. A. Horsburgh Campbell, engineer, 1, Parliament-square, Edinburgh.

NOVEMBER 30.—**Lochore and Glencraig.**—SEWERS, &c.—Construction of sewers, temporary purification works, &c., for the Kirkcaldy District Committee of the Fife C.C. Messrs. Gilbert Thomson & Ferguson, Civil engineers, 164, Bath-street, Glasgow. Deposit, £2 2s.

DECEMBER 6.—**Gellygaer.**—ROADS, &c.—Construction of roads and sewers, Craig site, Hengoed, for the U.D.C. Mr. J. Jones Williams, Architect, Council Offices, Hengoed. Deposit. £2 2s.

DECEMBER 6.—**Wood Green.**—STREET WORKS.—(*a*) Resurfacing with asphaltic macadam, Mayes-road, Barratt and Park-avenues; (*b*) Resurfacing with tar macadam, Finsbury and Palmerston-roads, for the U.D.C. Surveyor, Town Hall, Wood Green, N. 22. Deposit, £1.

DECEMBER 13.—**Leeds.**—WATER MAIN.—Laying of a 6 in. internal diameter cast-iron pipe line (approximate length, 15,600 yds.), and of 4 in. cast-iron pipe lines (approximate total length, 17,720 yds.), for the T.C. Mr. Chas. G. Henzell, Waterworks Engineer, Leeds.

Auction Sales, Tenders, etc.

✱NOVEMBER 23.—**Petersfield.**—Messrs. J. T. Skelding & Co., will sell in Mr. Garner's Meadow (adjoining the Volunteer Arms), Petersfield, timber and building materials. Auctioneers, 48, Gresham-street, Guildhall, E.C.2.

✱NOVEMBER 23 AND 24.—**Purfleet, Essex.**—Messrs. Edward R. Porter will sell, by direction of the Disposal Board, at "D" Lines, Purfleet Camp, Essex, Army surplus furniture and effects. Auctioneers, 27, 29 and 31, New-road, Grays; King-street, Stanford-le-Hope; and 16, Fenchurch-street, E.C.3.

✱Messrs. Joseph Hibbard & Sons' sale at Mildenhall, on November 23 and 24, has been cancelled.

NOVEMBER 30 AND DECEMBER 1.—**London, S.W.**—Messrs. Marten & Carnaby will sell by direction of the disposal Board, at Wandsworth C.S. Depot, No. 1701, 182a, Stewarts-road, Wandsworth-road, S.W.8. Domestic and office equipment, and building materials. Auctioneers, Thurlow Park-road, Dulwich, S.E.21.

DECEMBER 1.—**Cheverley, near Newmarket.**—Messrs. Wilson & Co. will sell at Cheverley Park Estate Yard, Cheverley, near Newmarket, the whole of the Estate material and dead stock building material, timber, &c. Auctioneers, 14, Mount-street, London, W.1.

✱DECEMBER 9.—**London, W.1.**—Messrs. Knight, Frank & Rutley will sell, by direction of the Council of His Royal Highness, The Prince of Wales, K.G., in their Hanover-square Estate Room, the Freehold Estate, extending to about 8 acres, being a portion of the Duchy of Cornwall Estate at Kensington. Auctioneers, 20, Hanover-square, W.1.

✱DECEMBER 13.—**Longford, near Derby.**—Messrs. Weatherall & Green will sell at Longford Hall, near Derby, the antique and modern furniture. Auctioneers, 22, Chancery-lane, W.C. 2.

Competitions.

(*See Competition News, page 570.*)

Public Appointments.

✱NOVEMBER 22.—**Wilton.**—Clerk of Works required by the R.D.C. to supervise the erection of new houses. Mr. R. A. Skelton, Clerk to the Housing Committee, Bemerton, Salisbury.

✱NOVEMBER 29.—**Halifax.**—District Foreman required by the County Borough Council for the position of District Highways Foreman. Endorsed "District Foreman," Borough Engineer, Halifax.

✱NOVEMBER 29.—**Wandsworth.**—SANITARY INSPECTOR.—Sanitary Inspector required by the Borough Council. Mr. D. A. Nicholl, Town Clerk, Council House, Wandsworth, S.W. 18.

✱NOVEMBER 30.—**Colombo.**—Architectural Assistant required by the Colombo Municipal Council in the Office of the Municipal Works Engineer. Mr. N. M. Ingram, Esq., Burlingham, Norfolk.

NOVEMBER 30.—**Thetford.**—Clerk of Works required by the Borough for housing scheme. Mr. John Houchen, Town Clerk, London-road, Thetford, Norfolk.

✱NO DATE.—**Nigeria.**—ASSISTANT ENGINEERS.—Assistant Engineers for the Public Works Department required at once by the Government of Nigeria. Crown Agents for the Colonies, 4, Millbank, Lond S.W.1.on.

✱NO DATE.—**West Riding of Yorkshire.**—Building Surveyor required by the West Riding of Yorks County Association on the Staff of the Secretary. The Secretary, West Riding of Yorks County Association, 9, St. Leonards, York.

Messrs. James Wild & Co., of 40, Deansgate, Manchester, are now manufacturing a new type of roof truss (the "Cradle"), in which the compression members are of timber and the tension members of steel. The parts are jointed and assembled on a new system by which no cast-iron shoes or struts are used, and the tension rods are attached to the face of the woodwork instead of passing through holes drilled in it. The cradle connector is of pressed steel of semi-circular section. The tension rods are attached by the fish-plates by standard steel tubes passing through from one face to the other. The trusses can be easily and rapidly erected and taken down, and they are claimed to be specially suitable for factories, garages, farm buildings, cinemas, bungalows, &c.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities "proposed" works at the time of publication have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

BARLBY.—The Selby Warehouse and Transport Co., Ltd., has presented a site for a school to the East Riding C.C.

BLYTHE AND CUCKNEY.—Plans proposed by R.D.C.: Forty houses, Harworth, for the Harworth Colliery Co.

CARLISLE.—Mr. R. G. Hetherington (Ministry of Health Inspector), has held an inquiry into the application of the C.C. for sanction to borrow £45,700 for works of sewage for the Upperby (Caldew Valley) and Belle Vue districts of the city.

CLACTON.—Plans passed: Motor garage, Church-road, for Mr. H. P. Gadsdon; alterations to premises, Jameson-road, for Mr. W. Baker; conversion of garage into dwelling-house, Chapman-road, for Mr. R. W. Coan; bungalow, Walton-road, for Mr. A. Eaves; cottage, Oxford-road, for Mr. T. Thurgood; new w.c.'s and extension to canteen, for Comrades Club; shops and flats, corner of Rosemary-road and Pier-avenue, for Ruatan Garden Co., Ltd.

DURHAM.—Two bungalows are in course of erection by the Dean and Chapter of Durham for their servants at Palmer's-close. If they are regarded as acceptable, others are to be erected. They contain three bedrooms, bathroom, kitchen and parlour, and are to be occupied by lay clerks.

FESTINIOG.—Plans for the erection of a Memorial Hospital have been approved by the Heroes' Memorial Committee. The total cost is estimated at £10,000. The plans were prepared by Mr. Clough Williams Ellis, of London and Llanfrotheu.

FULHAM.—The L.C.C. has consented to the erection of a building in Halford-road, for Renault, Ltd.

HACKNEY.—Plans passed: Rebuilding work and drainage, 311, Mare-street, for Mr. M. Filberg; rebuilding workshop, 34, Lauriston-road, for Mr. S. P. Chalke; addition, premises of Achille Serre, 55, Wallis-road, for Mr. A. L. Forge.

HAMMERSMITH.—The L.C.C. proposes to lease a site of about eight acres in St. Quentin Park, Hammersmith, to Messrs. A. E. Hawley & Co., for the erection of dye works.

HANLEY.—The plans of the proposed new High School for girls in Hanley have been approved by the Board of Education. The Board has also approved plans of alterations and additions to Hanley Secondary School and Longton High School. The architect has been instructed to prepare working drawings and estimates.

HOLMFIRTH.—The U.D.C. has received a report from the West Riding authorities stating that it was desirable that a scheme be drawn up for the erection of 100 more houses. The present housing scheme of the Council is approaching completion.

HOVE.—Plans passed by T.C.: Conversion of 8, Goldstone-villas into flats, Mr. B. James, for Mrs. Webster; alteration Princes Hotel, Mr. H. Elwig, for the Princes Hotel Co.; conversion, 12, Cambridge-grove, Messrs. J. Parsons & Sons, for Mr. C. R. Hartley; shop front, 66 and 68, Church-road, for Messrs. F. Ray & Sons; motor garage, 65, Brunswick-place, Mr. F. C. Oxtall, for Mr. M. Leanse; addition, 3, Hartington-villas, Mr. W. H. Overton, for Mr. W. Upperton; conversion into flats, 7, Medina-terrace, Mr. W. H. Overton, for Mrs. Block; conversion into flats, 109, Lansdowne-place, Mr. F. C. Oxtell, for Mrs. Roche; pair of semi-detached houses, New Church-road, Mr. W. J. Burstow, for Mr. W. J. Chadwell; house, Pembroke-gardens, Messrs. J. Parsons & Sons, for Mr. R. H. Winter; house, Ferndale-road, Messrs. H. Ling & Co.

HULL.—Plans passed by T.C.: Hill & Ward, houses, Newland Park; British Oil & Cake, Garden Village, Ltd., 46 houses, New Garden-village, Holderness-road; H. Rix, house, Newland Park; D. C. Carter, house, Newland Park; Hull Oil Manufacturing Co., Ltd., additions to office, Stoneferry; Vinegrad & Co., alterations, 54, Porter-street; J. Coulson, roof, &c., Salt-house-lane; The Globe Estate Co., water closets, High-street; Trustees, Hull Trinity House, alterations, 6, Whitefriargate; Amos & Smith, plumbers' workshop, Neptune-street; Barchard's, Ltd., shed, West Dock-street; T. S. Kaye, additions, 23, Bond-street; Co-operative Wholesale Society, Ltd., condenser house, &c., Cumberland-street; London Joint City & Midland Bank, Ltd., alterations, 239, Hessle-road; Hull Forge Iron & Steel Co., Ltd., water closets, Cannon-street; Mayfield Bros., shed additions, Sculcoates-lane; A. & R. Appleton, Ltd., new elevator house, Cleveland-street; B. Rix, garage, Newland Park; Lipton, Ltd., shop, Charles-street and Wright-street; Lipton, Ltd., shop, Hessle-road; Tadman Bros., water closets, Humber-street and Humber Dock Side; British Oil and Cake Mills, Ltd., loading shed, Foster-street, Stoneferry; British Oil and Cake Mills, Ltd., shed, Foster-street, Stoneferry; Trustees, Hull Trinity House, strong room, 6, Whitefriargate; Raines & Porter, Ltd., alterations, Wincolmlee; Ellerman's Wilson Line, copper house,

(*Continued on page 593*).

* See also our List of Competitions, Contracts, etc.

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. Since our last issue steel, lead, oil, turps and paint have been revised.—Ed.]

BRICKS, &c.

	£ s. d.
Per 1,000 Alongside, in River Thames up to London Bridge.	
Best Stocks	4 17 0
Per 1000, Delivered at London Goods Stations.	
	£ s. d.
Flettons	3 17 0
Best Stourbridge Fire bricks	12 14 0
GLAZED BRICKS—	
Best White, Ivory, and Salt Glazed Stretchers	29 10 0
Headers	29 0 0
Quoins, Bullnose and 4½in. Flats	36 0 0
Best Pressed Staffordshire	12 4 0
Do. Bullnose	12 9 0
Blue Wire Cuts	10 6 6
D'ble Str'tch'rs	38 0 0
D'ble Headers	35 0 0
One Side and two Ends	39 0 0
Two Sides and one End	40 0 0
Splays and Squints	37 10 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

	s. d.	
Thames Ballast	19 6	per yard, delivered
Pit Sand	25 0	
Thames Sand	25 6	2 miles
Best Washed Sand	25 6	radius
½ in. Shingle for Ferro-Concrete	24 6	Paddington.
¼ in.	25 6	

Per ton, delivered in London area.

	£ s. d.	
Best Portland Cement	4 7 6	4 13 0

80/6 alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above		10 0
Best Ground Blue Lias Lime	2 19 6	at rly. depot.

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks. The sacks are charged at 2s. 6d. each and credited at 2s. each if returned in good condition within three months.

Grey Stone Lime ..... 75s. 0d. per ton delivered.
Stourbridge Fireclay in s'cks 44s. 8d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R.. per ft. cube	3 2½
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R.. per ft. cube	3 5½
Do. do. delivered on road wagons at Nine Elms Depot	3 6½
PORTLAND STONE—	
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L.&S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 11½
Do. do. delivered on road waggons at above stations, per ft. cube	5 0½
White basebed, 3d. per ft. cube extra.	

NOTE.—½d ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.

	s. d.
YORK STONE, BLUE—*Robin Hood Quality.* Delivered at any Goods Station London.	
Scappled random blocks ..... Per Ft. Cube	17 4
6 in. sawn two sides landings to sizes (under 30 ft. super.) ..... Per Ft. Super	11 10½
6 in. rubbed two sides, ditto ..... "	13 3½
3 in. sawn two sides slabs (random sizes) "	5 3
2 in. to 2½ in. sawn one side slabs (random sizes) ..... "	3 2
1½ in. to 2 in. ditto, ditto ..... "	2 9
HARD YORK— Delivered at any Goods Station London.	
Scappled random blocks ..... Per Ft. Cube	13 3
6 in. sawn two sides landing to sizes (under 40ft. super.) ..... Per Ft. Super	10 3
6 in. rubbed two sides ditto ..... "	12 1
4 in. sawn two sides slabs (random sizes) "	6 2
3 in. ditto, ditto "	4 11
2 in. self-faced random flags .. Per Yard Super	16 2

WOOD.

GOOD BUILDING DEAL.

Inches	£ s.	
4 × 11	67 10	per standard
4 × 9	67 10	"
4 × 8	60 0	"
4 × 7	50 0	"
3 × 8	48 10	"
3 × 7	47 10	"
2½ × 7	47 10	"
3 × 6	45 0	"
3 × 11	65 0	"
2 × 11	65 0	"
3 × 9	57 10	"
2½ × 9	57 10	"
3 × 4½	47 10	"
3 × 4	47 10	"

PLANED BOARDS.

1 × 11	67 10	
1 × 9	65 0	"

PLAIN EDGE FLOORING.

Inches		
⅞	40/-	square
1	45/-	"
1	52/6	"
1¼	66/-	"
1¼	75/6	"

TONGUED AND GROOVED FLOORING.

Inches		
1	52/-	square
1¼	65/-	"
1¼	75/-	"

WOOD (*Continued*).

MATCHINGS (BEST).

Inches		
⅞	36/-	square
1	42/6	"
1¼	54/-	"

BATTENS.

Inches	£ s.	
¾ × 2	45 0	per standard

SAWN LATHS.

Per bundle	0 6 6	

Dry Wainscot Oak, per ft. super, as inch	0 3 6	to	0 4 0		
½ in. do. do.	0 3 0	..	—		
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0 2 6	to	0 3 0		
Cuba. Mahogany	0 4 0	to	0 4 6		
Teak (Rangoon, Moulmein or Java), per load	75 0 0	to	85 0 0		
American Whitewood planks, per ft. cube	0 18 0	to	1 4 0		
Scotch Glue, per cwt.	10 0 0	..	—		
Liquid Glue, per cwt.	6 12 0	..	—		

SLATES.

1st quality slates from Bangor or Portmadoc in truck load delivered London area. Per 1,000 of 1,200.

		£ s. d.
Best Blue Bangor Slates,	24 by 12	56 10 0
" " "	22 by 12	46 0 0
First quality " "	22 by 11	42 10 0
" "	20 by 12	42 0 0
Best Blue Portmadoc	20 by 10	36 10 0
" "	18 by 10	29 10 0
First quality "	18 by 9	24 5 0
" "	16 by 10	22 15 0
" "	16 by 8	18 0 0

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district	6 15 0
Ditto hand-made ditto	7 5 0
Ornamental ditto	7 2 6
Hip and valley tiles (per dozen)	0 15 0

METALS.

JOISTS, GIRDERS, &C., TO LONDON STATION PER TON—

	£ s. d.
R. S. Joists, cut and fitted	38 0 0
Plain Compound Girders	42 0 0
Stancheons	44 0 0
In Roof Work	48 0 0

WROUGHT-IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £15 net value delivered direct from works. 5 per cent. less above gross discounts, carriage forward if sent from London stocks.)

Sizes up to and including ⅜ in.	Sizes up to and including 2in. Tubes.	Fittings.	Sizes 2½ in. to 6 in. Tubes.	Fittings.
Gas	+ 7½	+ 5 — 5	— 2½	— 17½
Water	+ 17½	+ 15 Net	+ 6½	— 15
Steam	+ 28½	+ 20½ + 5	+ 16½	— 12½
Gal. Gas	+ 32½	+ 30 + 5	+ 22½	— 7½
" Water	+ 45	+ 42½ + 10	+ 33½	— 5
" Steam	+ 57½	+ 55 + 15	+ 45	— 2½

L.C.C. COATED SOIL PIPES—London Prices ex works.

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
2 in. per yd. in 6 fts.	6 10	4 10	5 9½
2½ in. "	7 10½	5 4	7 3
3 in. "	9 8½	5 9½	8 8½
3½ in. "	10 9	7 3	10 2
4 in. "	11 9½	8 2½	11 7½

RAIN-WATER PIPES, &C.

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
2 in. per yd. in 6fts. plain	5 9	3 0	4 2
2½ in. " "	6 4	3 7	5 0
3 in. " "	7 6	4 6	6 8
3½ in. " "	9 1	5 3	7 9
4 in. " "	10 0	6 6	9 6

L.C.C. DRAIN PIPES.—9 ft. lengths. London Prices. 4 in., 14/–. .. 5 in., 17/9. .. 6 in.. 21/5.

	Per ton in London. £ s. d.		£ s. d.	
IRON—				
Common Bars	34 10 0	to	35 10 0	
Staffordshire Crown Bars good merchant quality	35 0 0	..	37 0 0	
Staffordshire "Marked Bars"	36 10 0	..	38 10 0	
Mild Steel Bars	35 0 0	..	37 0 0	
Steel Bars. Ferro-Concrete quality, basis price	35 0 0	..	37 0 0	
Hoop Iron, basis price	44 0 0	..	46 0 0	
" Galvanised	62 0 0	..	66 0 0	
Sheet Iron, and Soft Steel Black—				
Ordinary sizes to 20 g.	45 0 0	..	47 0 0	
" " 24 g.	46 0 0	..	48 0 0	
" " 26 g.	48 0 0	..	50 0 0	
Sheets/Flat Best Soft Steel, C.R. & C.A. quality—				
Ordinary sizes, 6ft by 2ft. to 3ft. to 20 g.	56 0 0	..	58 0 0	
Ordinary sizes, 6ft. by 2ft. to 3ft. to 22 g. and 24 g.	57 0 0	..	59 0 0	
Ordinary sizes, 6ft. by 2ft. to 3ft. to 26 g.	59 0 0	..	60 0 0	
Flat and Galvanised Corrugated Sheets—				
Ordinary sizes, 6 ft. to 9ft. 20 g.	44 0 0	..	45 0 0	

METALS (*Continued*).

	Per ton in London. £ s. d.		£ s. d.	
Ordinary sizes, 6ft. to 9ft. 22 g. and 24 g.	45 0 0	..	46 0 0	
Ordinary sizes, 6ft. to 9ft. 26 g.	47 0 0	..	48 0 0	
Sheets Glavanised Flat, Best quality—				
Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker	50 0 0	..	52 0 0	
Best Soft Steel Sheets, 22 g. and 24 g.	51 0 0	..	52 0 0	
Best Soft Steel Sheets 26 g.	53 0 0	..	54 0 0	
Cut Nails, 3in. to 6in.	47 10 0	..	48 10 0	
(under 3in. usual trade extras.)				

LEAD, &c.

	Delivered in London. £ s. d.		£ s. d.	
LEAD Sheet, English, 4 lb. and up	48 0 0	..	—	
Pipe in coils	48 10 0	..	—	
Soil Pipe	51 0 0	..	—	
Compo pipe	52 0 0	..	—	

NOTE—Country delivery, 30s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

Old lead, ex London area, at Mills ..... per ton	29	0	0 ..	—
Do., ex country, carriage forward ..... per ton	30	0	0 ..	—

	£ s. d.		
COPPER—			
Strong Sheet ....per lb.	0 2 3	..	—
Thin " .... "	0 2 4	..	—
Copper nails .... "	0 2 3	..	—
Copper wire .... "	0 2 4	..	—
TIN—English Ingots "	0 2 9	..	—
SOLDER—Plumbers' "	0 1 4	..	—
Tinmen's "	0 1 9	..	—
Blowpipe "	0 2 0	..	—

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

Per Ft.		Per Ft.
15 oz. fourths 7d.	32 oz. fourths	11d.
" thirds 7½d.	" thirds	1/-
21 " fourths 9d.	Fluted, Obscured and	
" thirds 9½d.	Enamelled Sheet,	
26 " fourths 10d.	15 oz.	10d.
" thirds 11d.	21 "	1/-

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
⅛ Rolled plate	6½d.
⅛ Rough rolled and rough cast plate	7½d.
⅛ Rough rolled and rough cast plate	8½d
Figured Rolled, Oxford Rolled, Baltic, Oceanic Arctic, Stippolyte, and small and large Flemish white	7½d.
Ditto, tinted	9½d.
Rolled Sheet	7d.
White Rolled Cathedral	7d.
Tinted do.	9d.

PAINTS, &c.

	£ s. d.
Raw Linseed Oil in pipes ..... per gallon	0 6 7
" " " in barrels .... "	0 6 9
" " " in drums .... "	0 6 11
Boiled " in barrels .... "	0 7 3
" " " in drums .... "	0 7 5
Turpentine in barrels ..... "	0 9 5
" in drums (10 gall.) .. "	0 9 11
Genuine Ground English White Lead, per ton	79 10 0
(In not less than 5 cwt. casks.)	
GENUINE WHITE LEAD PAINT— "Father Thames," "Nine Elms," "Park," "Supremus" and other best brands (in 14 lb. tins) not less than 5 cwt. lots ..... per ton delivered	107 0 0
Red Lead, Dry (packages extra) .. per ton	80 0 0
Best Linseed Oil Putty ..... per cwt.	1 7 0
Filocol ..... per cwt.	1 0 6
Size. X D Quality ..... fkn.	0 5 9

VARNISHES, &c.

	Per gallon. £ s. d.
Oak Varnish ..... Outside	0 18 0
Fine ditto ..... ditto	1 0 0
Fine Copal ..... ditto	1 1 6
Pale Copal ..... ditto	1 2 6
Pale Copal Carriage ..... ditto	1 4 6
Best ditto ..... ditto	1 14 6
Floor Varnish ..... Inside	0 19 0
Fine Pale Paper ..... ditto	0 18 0
Fine Copal Cabinet ..... ditto	1 2 6
Fine Copal flatting ..... ditto	1 0 6
Hard drying Oak ..... ditto	0 18 0
Fine Hard drying Oak ..... ditto	0 19 0
Fine Copal Varnish ..... ditto	1 0 6
Pale ditto ..... ditto	1 2 6
Best ditto ..... ditto	1 14 6
Best Japan Gold Size	0 16 6
Best Black Japan	1 0 9
Oak and Mahogany Stain (water)	0 17 6
Brunswick Black	0 11 9
Berlin Black	0 19 9
Knotting (patent)	1 18 6
French and Brush Polish	1 14 0
Liquid Dryers in Terebine	0 16 0
Cuirass Black Enamel	0 7 0

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

CURRENT PRICES FOR BUILDING WORK IN LONDON.*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	25	0
Add if in clay	" "	2	0
Add for every additional depth of 6 ft.	" "	1	6
Planking and strutting to trenches	per foot super	0	7½
Do. to sides of excavation, including shoring	" "	1	6

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	55	0
Add if in underpinning in short lengths	" "	10	0
Add if in floors 6 in. thick	" "	4	0
Add if in beams	" "	5	0
Add if aggregate 1 : 2: 4	" "	15	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	"	4	6

BRICKLAYER.

		£	s	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	50	15	0
Add if in stocks	"	12	10	0
Add if in Staffordshire blues	"	34	10	0
Add if in Portland cement and sand	"	4	15	0

FACINGS.

Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1½

POINTING.

Neat flat strucks or weathered joint	" "	0	0	3½

ARCHES.

Extra only to the price of ordinary brickwork :—				
Fair external in half brick rings	" "	0	1	0
Axed in stocks	" "	0	2	0
Rubbed and gauged jointed in putty camber or segmental	" "	0	7	0

SUNDRIES.

Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	1	8
Setting ordinary register grates and stoves	each	1	5	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	6	15	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	9	0
Three-quarter-inch vertical damp course	" "	14	3
One inch on flats in two thicknesses	" "	12	0
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	6

MASON.

		s.	d.
York stone templates fixed	per foot cube	22	0
York stone sills fixed	" "	35	0
Bath stone and all labour fixed	" "	16	9
Portland stone fixed	" "	26	0

SLATER.

		s.	d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	98	0
Do. 20 in. × 10 in. Do. Do.	"	115	0
Do. 24 in. × 12 in. Do. Do.	"	117	6

CARPENTER AND JOINER.

		s.	d.
Fir framed in plates	per foot cube	9	6
Do. joists	" "	10	6
Do. roofs, floors and partitions	" "	11	9
Do. trusses	" "	14	0

		¾"	1"	1¼"	1½"
Deal rough close boarding	per sq.	60/-	81/-	100/-	108/-

		s.	d.
Flat centering for concrete floor, including struts or hangers	"	68	0
Do. to beams	per ft. sup.	1	10
Centres for arches	"	2	4
Gutter boards and beams	"	1	9

FLOORING.

		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.		82/-	104/-	120/-
Do. tongued and grooved	"		88/-	110/-	127/-
Do. matchings	"	74/-	89/-		
Moulded skirting, including backings and grounds	per ft. sup.	2/4	2/8	3/2	3/8

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super	2	0
Two Do. Do. Do.	" "	2	6
Add for fitting and fixing	" "	0	6
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights; average size	" "	5	6

DOORS.

		1½"	1¾"	2"
Two-panel square framed	per ft. sup.	2/8	2/11	3/1
Four-panel Do.	"	3/-	3/4	3/7
Two-panel moulded both sides	"	3/4	3/7	3/10
Four-panel Do. Do	"	3/8	3/11	4/2

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	22	0

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	2/3	2/5	2/9
Deal shelves and bearers	"	2/-	2/2	2/3
Add if cross tongued	"	2/-	2/-	2/-

STAIRCASES.

		1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets		3/4	4/-	4/8	—	—
Deal strings wrot in both sides and framed	"	4/6	4/9	—	—	—

		s.	d.
Housings for steps and risers	each	1	0
Deal balusters, 1 in. × 1¼ in.	per ft. run.	0	9
Mahogany handrail; average 3 in. × 3 in.	" "	6	3
Add if ramped	" "	12	6
Add if wreathed	" "	25	0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	9d.	Rim locks	2/6
Sash fasteners	1/-	Mortice locks	5/6
Casement fasteners	1/6	Patent spring hinges and letting in to floor and making good	20/-
Casement stays	1/3		
Cupboard locks	1/6		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	42	9
Plain compound girders	"	46	9
Do. stanchions	"	48	9
In roof work	"	52	9

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	2/-	2/6	3/9	4/3
Ogee Do. Do.	"	2/6	3/3	4/-	5/-
Rain-water pipes with ears	"	2/11	3/9		
Extra for shoes and bends	each	4/7	6/3		
Do. stopped ends	"	2/-	2/6	3/9	4/3
Do. nozzles for inlets	"	2/3	2/9	4/-	4/6

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	77	0
Do. Do. in flats	"	72	0
Extra labour and solder in coated cesspools	each	8	0
Welt joint	per ft. run.	0	6
Soldered seam	" "	2	3
Copper nailing	" "	0	8

		½"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run	1/2	1/11	2/3	4/-	5/-	
Do. service	"	1/10	2/5	3/-	4/9		
Do. soil	"						8/-
Bends in lead pipe	each					4/-	10/-
Solderer's stop ends	"	1/6	2/-	2/6	3/6	4/3	
Red lead joints	"	1/1	1/4	1/7	2/4	3/-	6/-
Wiped soldered joints	"	3/6	4/3	5/-	6/-	8/-	12/-
Lead traps and cleaning screws	"				18/-	24/-	
Bib cocks and joints	"	7/6	11/3	18/-	48/-		
Stop cocks and joints	"	18/-	20/-	30/-	75/-		

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	3	4
Do. Do. Sirapite	" "	3	9
Do. Do. Keen's	" "	5	0
Add sawn lathing	" "	2	0
Add metal lathing	" "	3	0
Portland cement screed	" "	3	0
Do. plain face	" "	4	6
Mouldings in plaster	per 1 girth	0	3
One-and-a-half granolithic pavings	per yard sup.	6	9

GLAZIER.

		s.	d.
21 oz. sheet plain	per foot sup.	1	10
26 oz. Do.	" "	2	0
Obscured sheet	" "	2	3
¼ in. rolled plate	" "	1	3½
¼ in. rough rolled or cast plate	" "	1	4½
½ in. wired cast plate	" "	1	9½

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	1	6
Knotting and priming	" "	1	0
Plain painting 1 coat	" "	1	6
Do. 2 coats	" "	2	4
Do. 3 coats	" "	3	2
Do. 4 coats	" "	4	0
Graining	" "	3	0
Varnishing twice	" "	2	6
Sizing	" "	0	4
Flatting	" "	0	9
Enamel	" "	2	0
Wax polishing	per foot sup.	0	11
French polishing	" "	1	9
Preparing for and hanging paper	per piece	2/- to 5/-	

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

(*Concluded from page 590.*)

Commercial-road; J. A. Scott, Ltd., shed, Conduit-street; A. & H. Longhurst, stables, Kirkstead-street; Raines & Porter, garage, Oxford-street; Hull Corporation, workshop and garage, Stepney-lane Depot; Walton, Gooddy & Cripps, Ltd., office and store shed, St. James-street; Boots Drug Stores, alterations, Anlaby-road and Granville-street.

LEEDS.—A sketch plan for a sanatorium at Moortown has been approved by the Council. Plans have been approved by the Licensing Committee for alterations at Cavendish Studio, Cavendish-road, for Dr. S. R. Rumboll; alterations at Spencer Hall, 46 Franklin-place, Potternewton, for Mr. A. Ward.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him *not later than first post on Wednesday.*

* Denotes *accepted.* † Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modifications.*

BALDOCK.—For erection of 22 cottages and sets of buildings, for the Allotments Committee of the Herts C.C.:—

*John Ray, Baldock	£40,349

LONDON.—For the enlargement of Wix's-lane School, Battersea, for the L.C.C.:—

*W. C. Lole & Co., Trafalgar-square, Chelsea	£13,755 0 0
Holliday & Greenwood, Ltd., Battersea	14,970 0 0
F. & H. F. Higgs, Ltd., Hernehill	15,400 0 0
J. & C. Bowyer, Ltd., Upper Norwood	15,516 3 6
Triggs & Co., Clapham	15,593 0 0
Wm. Akers & Co., Ltd., South Norwood	16,537 0 0
A. Roberts & Co., Ltd., Kensington	18,063 0 0

CHINGFORD.—For 70 proposed houses on the Hall Estate site, Chingford, for the U.D.C. Messrs. Gunton & Gunton, F.R.I.B.A., architects and surveyors, Finsbury House, E.C. Quantities by the architects:—

	3 Blocks. B. No. 1. Per block.	9 Pairs. B. No. 3. Per Pair.	4 Pairs. B. No. 5. Per pair.	8 Blocks. A. No. 8.	Preliminaries to drains, &c.	Drains.	Footpaths.	Total.
Peachey Bros., Walthamstow	£4,608 0 0	£2,688 0 0	£2,563 0 0	£4,625 0 0	£100	£4,932	£2,292	£92,590 0 0
C. Brightman & Son	—	—	—	—	—	—	—	83,088 0 0
S. S. Cormack, Chingford	—	—	—	—	—	—	—	80,500 0 0
Roome & Co., Hackney	4,181 0 0	2,030 0 0	2,139 0 0	3,758 0 0	50	5,164	1,020	75,667 0 0
G. Parker, Peckham	4,200 0 0	2,000 0 0	2,180 0 0	3,850 0 0	240	4,360	795	75,515 0 0
Mr. Monk, Edmonton	4,108 0 0	1,964 0 0	2,130 0 0	3,794 0 0	210	4,310	772	74,164 0 0
Mr. Sands, Chingford	—	2,019 0 0 (*a*)	—	3,680 0 0 (*b*)	—	—	—	11,398 0 0
The following afterwards submitted fresh estimates on revised quantities:—								
*Mr. Monk	4,091 3 3	1,953 2 3	2,121 8 6	3,410 10 11	210	4,310	772	70,913 11 4
G. Parker	4,185 0 0	1,990 0 0	2,173 0 0	3,600 0 0	240	4,360	795	73,352 0 0
Mr. Sands	—	—	—	3,580 0 0 (*c*)	—	—	—	(*d*) 10,753 0 0
Roome & Co.	4,165 0 0	2,020 0 0	2,131 0 0	3,383 0 0	50	5,164	1,020	72,497 0 0

(*a*) 2 Pairs. (*b*) 2 Blocks. (*c*) 3 Blocks. (*d*) 12 houses only.

LINCOLN.—A M.H. inquiry has been held into the application of the T.C. to borrow £44,685 in connection with the sewage disposal works.

LOWESTOFT.—The G.E.R. Co. intends shortly to proceed with an enlargement of its station.

MALLING.—The Housing Committee has reported that the following certificates have been issued under the Housing (Additional Powers) Acts: Certificates "A," A. E. Reed & Co., eight cottages; Mr. T. B. Waller, bungalow; the Rev. W. S. Ryan, house; Miss G. P. Newman, bungalow; Certificates "B," Miss Sers, house; Mr. C. B. Mercer and A. E. Reed & Co., two cottages each.

PICKERING.—It is proposed to erect a public hall, and the bulk of the money has been raised.

SCARBOROUGH.—A new Central Hall is to be built on the site of the Queen-street Wesleyan Chapel, which was destroyed by fire in 1916. The building is to cost £27,000. The foundation stones of the new building are to be laid at Whitsuntide next year, and it is hoped to complete it by Easter, 1922.

SOUTHEND-ON-SEA.—Plans passed: Alterations and additions, St. Mary's Villa, Hartington-road, for Mr. J. J. Sullivan; alterations and additions, "Bradnirch" King's-road, for Mr. N. Bishop; afterations, 78, Valkyrie-road, for Mr. S. Sovensky; alterations, 47, High-street, for Mr. O. Wallis; garage, 9, Pembury-road, for Mr. R. Barlow Tyler; garage, "Dunrovin," London-road, for Mr. C. Webster; garages and stores, rear of Marine-parade, Southend-on-Sea, for Mr. L. Greenwood; bungalow, Victoria-avenue, for Mr. F. A. Donnithorne; alterations, 2, 3 and 4, Warrior-square, for Swift Beef Co., Ltd.; two houses, Grand-parade, for Mr. T. Pryor; house, Crowstone-road, for Mr. H. J. Jefferies; store, St. George's-drive, for Mr. A. Harris; seven houses, Fairleigh-drive and Southsea-avenue, for the Alliance Housing Association; seven houses, Fleetwood-avenue and Ronald Park-drive, for the Alliance Housing Association; garage, Hadleigh-road, for Mr. F. R. Hemingway; concert-room and additions, 1, Southchurch-road, for Mr. C. H. J. Talmage; paint store, West-road, for Mr. F. G. Bethley; alterations, Parkanaur-avenue, for Mr. A. W. Savill; conservatory, Herschell-road, for Mr. G. Jay; additions, Leigh-road, for Drs. Walker & Sarra; alterations, Minerva Hotel, Eastern-esplanade, for Messrs. Mann, Crossman & Paulin, Ltd.; additions, 459, London-road, for the Westcliff-on-Sea Char-a-banc Co., Ltd.; additions, 13, High-street, for Mr. L. Bertorelli; workshop, London-road, for Mr. G. W. Eves; alterations and additions, Nelson Mews, for Mr. J. Vineall; conservatory, "The Bungalow," Lansdowne-avenue, for Mr. S. Knight; workshop, Lymington-avenue, for Mr. E. G. Johnson; conservatory, Highcliff-drive, for Mr. H. Bridge; shop, Flats and dairy, The Broadway, Leigh, for the Howard's Dairies, Ltd.

STALYBRIDGE.—The T.C. has decided to apply to the Ministry of Health for sanction to borrow £3,885 for the purchase of the West Hill estate for use as a school.

WALSALL.—Plans by the Borough Surveyor for the erection of a bandstand in the Arboretum at an estimated cost of £1,300 have been approved.

FIRES.

EALING.—St. John' Church, West Ealing, has been completely gutted by fire.

NEWCASTLE-ON-TYNE.—A serious fire has occurred at the premises of Messrs. T. Harper & Sons, ship's store merchants, in Broad Chare.

YEADON.—Damage estimated at £12,000 was caused by a fire which almost entirely gutted a boot and shoe factory in Chapel-lane, occupied by the Wharfedale Boot and Shoe Company, Ltd.

Labour for Housing.

At the meeting of the London County Council on Tuesday last, the Special Committee on Unemployment reported that on housing there were now 1,545 unskilled men employed as against 759 a month ago.

GLASGOW.—For the erection of 36 houses, at Pleasance-street, Pollokshaws, for the T.C.:—

*John M'Donald, Ltd. (*Brick and mason work*)	£21,098 11 1
*John M'Donald, Ltd. (*Carpenter and joiner work*)	13,244 11 0
*Alexander C. Whyte & Co. (*Slater work*)	1,404 19 9
*Cooper & Duff (*Plumber work*)	5,414 13 4
*Archibald M'Kellar (*Plaster work*)	2,889 0 3
*Robert Henderson & Co (*Painter work*)	820 19 10

GLASGOW.—For plaster work in connection with the extension of the Municipal Buildings, for the T.C.:—

*W. Tonner & Sons, Glasgow	£21,085 18 6

GLASGOW.—For carpenters' work in connection with the extension of the Municipal Buildings, for the T.C.:—

*James Morrison & Sons	£52,588 8 2

HOVE.—Construction of roads and sewers on Portland-road housing site, for the T.C.:—

*Parsons & Sons	£10,219

HULL.—For supply of (*a*) paving wood; and (*b*) floor boards, to the T.C.:—

*(*a*) C. A. Baker .. 30 Standards 3 in. by 7 in. U/s Swed. (CL mk.) at £40 per standard, and 10 Standards 3 in. by 8 in. U/s Swed. (CL mk.) at £41 per standard, both parcels free to rullies.	
*(*a*) Hodgson, Levitt & Co. .. 25 Standards 3 in. by 6½ in. Sandvik U/s S*A at £21 10s. per standard, plus labour in Hull.	
*(*b*) Beecroft & Wightman, Ltd. .. 150 squares Red 1 in. by 7 in. at 53s. per square.	
*(*b*) Hodgson, Levitt & Co. .. 200 squares 1¼ in. by 7 in. Gefle U/s Red TOL 1 Cut PTG at 37s. 9d. per square, plus labour.	

KILHAM.—For the erection of teacher's house, for the East Riding of Yorkshire C.C.:—

*Bastiman (*Builder work*)	£694 5 6
*Corner (*Joiner work*)	415 4 6

LEEDS.—For erection of houses on Ivy House estate, for the T.C.:—

Five Pairs of Class "A" Houses—	
*Davey & Haley (*Bricklayer and mason work*)	£4,015 7 11
*H. C. Bridge (*Joiner work*)	2,570 0 0
*T. M. West (*Plumber work*)	1,068 16 8
*G. W. Sedgwick (*Slater work*)	335 0 0
*G. Dobson (*Plasterer work*)	607 3 0
*T. W. Fisher (*Painter work*)	268 9 2
Four Blocks of Three Class "A" Houses—	
*Davey & Haley (*Bricklayer and mason work*)	£4,586 6 0
*H. C. Bridge (*Joiner work*)	3,282 0 0
*T. M. West (*Plumber work*)	1,311 1 8
*G. Sedgwick (*Slater work*)	588 0 0
*G. Dobson (*Plasterer work*)	723 18 0
*T. W. Fisher (*Painter work*)	293 2 0

LEEDS.—For painting, &c., at Day Nurseries, for the T.C.:—

*W. H. Pitts	£138 6 and £164 9 6

LONDON.—For alterations at Great Smith-stree Library, for the Westminster C.C.:—

*J. R. Sims	£14,460 0
Townsend & Pearson, Ltd.	15,221 16
Kirk & Kirk	15,300 0
William Whiteley, Ltd.	15,876 0

LONDON.—For the erection of 54 tenements on the Tabard Garden Estate, for the L.C.C.:—

*Kirk & Randall, Ltd., 24, Grosvenor-place, S.W.	£53,182 6 2
Walter Lawrence & Son, Ltd., 19, Finsbury-square, E.C.	55,678 0 0
G. E. Wallis & Sons, Ltd., Panton-street, S.W.	56,744 0 0
Foster & Dicksee, Ltd., London, S.W., and Rugby	56,969 0 0
Holliday & Greenwood, Ltd, Battersea	57,777 0 0
Rowley Bros., Boundary Works, Wood Green	57,832 0 0
Patman & Fotheringham, Ltd., Islington, N.	59,620 0 0
Leslie & Co., Ltd., Kensington-square, W.8.	59,790 0 0
Thomas & Edge, Woolwich	61,721 0 0

LONDON.—For tar-paving at the County Secondary School, Putney, for the L.C.C.:—

*Triggs & Co., The Chase, Clapham	£1,427 0
R. A. Jewell, Ltd., Wandsworth	1,456 0
A. Roberts & Co., Ltd., Kensington	1,580 0
W. & C. Brown, Ltd., Wandsworth	1,581 0
J. & C. Bowyer, Ltd. Upper Norwood	1,594 0
J. Garrett & Son, Balham-hill	1,718 0
H. A. Murphy & Co., Hammersmith	1,749 0
W. S. Barton & Co., 43, Chancery-lane	1,980 0
H. H. Hollingsworth & Son, Peckham	2,040 0
G. W. Beattie, Putney	2,384 0
Whitbys, High Holborn	2,412 5

LONDON.—Erection of elementary school, Sherington-road, Greenwich, for the L.C.C.:—

*T. D. Leng, Czar-street Works, Deptford	£38,431 0 0
Thomas & Edge, Woolwich	39,668 0 0
F. & H. F. Higgs, Ltd., Hernehill	40,820 0 0
G. Godson & Sons, Ltd., Kilburn-lane	42,450 0 0
J. & C. Bowyer, Ltd., Upper Norwood	42,870 0 0
Griggs & Son, Cubitt-town	43,495 17 6

LONDON.—For rebuilding of Webb-street School, Bermondsey, for the L.C.C.:—

*L. H. & R. Roberts, Lower Clapton-rd.	£48,414 16 10
Galbraith Bros., Ltd., Camberwell	50,950 0 0
J. Marsland & Sons, Ltd., Walworth	56,497 0 0
C. P. Roberts & Co., Ltd., Dalston	60,500 0 0
G. Parker & Sons, Ltd., Peckham	Prime cost plus 15 per cent.

LONDON.—For decorative repairs, &c., to buildings, for the Westminster City Council:—

	Westminster City Hall.	St. Clement Danes' Vestry Hall.	St. James's Vestry Hall.	No. 1, Bedfordbury.	Total.
*G. Holland & Sons	£550 0	£120 0	£175 0	£85 0	£930 0
(Less 2½ per cent. if all tenders are approved and accepted.)					
Jas. S. Catterall	335 0	140 10	195 0	90 0	760 10
(Subject to alterations in cost of labour and material.)					
W. Whiteley, Ltd.	468 0	154 10	266 10	99 0	988 0
Townsend & Pearson	539 0	159 0	227 0	81 0	1,006 0
Burton Bros.	585 0	145 0	230 0	85 0	1,045 0
J. R. Sims	540 0	150 0	305 0	104 0	1,099 0
Wright & Son	867 7	181 15	298 0	94 15	1,441 17

LONDON.—For repairs to carriageways of Edenham-street and Tottenham-street, for the Kensing on B.C. :—

*Highways Construction Co... At 8s. 6d. per square yard.

LONDON.—Additions to heating apparatus at Furzedown Training College, Wandsworth, for the L.C.C. :—

*H. J. Cash & Co., Ltd., Caxton House, Westminster	£1,664 0
G. Davis	1,738 0
W. G. Cannon & Sons, Ltd.	2,140 0
J. & F. May	2,195 10
The Brightside Foundry & Engineering Co., Ltd.	2,259 0
Comyn, Ching & Co., Ltd.	2,488 0
Tilley Bros.	2,780 0
Benham & Sons, Ltd.	3,634 0

LONDON.—Rebuilding of Burrage-grove School, Woolwich, for the L.C.C. :—

*F. & T. Thorne, Isle of Dogs	£36,027 0 0
Brand, Pettit & Co.	36,340 0 0
J. & C. Bowyer, Ltd.	41,270 0 9
Griggs & Son	43,343 15 5
J. Smith & Sons, Ltd.	44,286 0 0
C. P. Roberts & Co., Ltd.	45,053 0 0
L. H. & R. Roberts	45,210 0 0

NEWTON ABBOT.—For converting Newton Hall into flats, for the U.D.C. :—

*A. J. Murch £1,585

PORTSLADE.—For the erection of houses, for the U.D.C. :—

*Henry Boot & Sons, London .. 38 "A" Type houses at average price of £930 ; and 24 "B" Type at average price of £696.

PORTSMOUTH.—For work for the E.C. :—

(a) At the caretaker's lodge of the Albert road Council school—

*Frank Corke, Fawcett-road, Southsea	£525 0 0
Tanner Bros., Southsea	550 0 0
Juniper, Southsea	553 15 0
Howe & Bishop, Southsea	584 10 0
Grit (Portsmouth), Ltd., Landport	585 0 0
Coghlan, Southsea	599 10 0
Crockerell, Southsea	639 0 0
Henry Jones & Son, Southsea	679 0 0

(b) Temporary buildings at the Sanitary Offices—

*Till, Campbell-road, Southsea	£2,137 0 0
Tanner Bros., Southsea	2,440 0 0
Coghlan, Southsea	2,594 18 4
Crockerell, Southsea	2,792 0 0
Grit (Portsmouth), Ltd., Landport	2,799 0 0
Juniper, Southsea	3,636 4 0

RUTHERGLEN.—For the erection of 52 houses, for the T.C. Mr. Hugh Inglis, Burgh Engineer and Architect, Town Hall, Rutherglen. Quantities by Mr. Andrew Stewart, F.F.S., 261, West George-street, Glasgow :—

*M. E. Read & Campbell, Rutherglen (*Brickwork and roads*)	£24,073
*Wm. Bryce, Glasgow (*Joiner*)	£15,313
*George G. Kirk, Ltd., Rutherglen (*Glazier*)	288
*James Scott, Rutherglen (*Slater and roughcast*)	4,116
*Jas. T. MacDonald, Rutherglen (Do.)	4,116
*Wm. Miller & Co., Rutherglen (*Plaster and concrete*)	3,681
*Thomas Hastie, Rutherglen (*Painter*)	1,237
*Joseph Britton, Rutherglen (Do.)	1,237
*Small & MacDonald, Glasgow (*Electrical works*)	733

SOUTHBROOM.—For the erection of houses, for the T.C. :—

(a) Three blocks of one-pair semi-detached houses Type "B"—

H. A. Smith	£7,797 0 0
F. Rendell & Sons	7,288 10 0
W. E. Chivers & Sons, Ltd.	7,464 0 0

(b) Two blocks of four houses each Type "B"—

H. A. Smith	10,396 0 0
F. Rendell & Sons	9,803 2 10
W. E. Chivers & Sons, Ltd.	9,924 0 0

(c) Two blocks four houses each Type "B"—

H. A. Smith	11,200 0 0
F. Rendell & Sons	9,889 17 8
W. E. Chivers & Sons, Ltd.	10,132 0 0

(d) One block of six houses, Type "B"—

H. A. Smith	7,797 0 0
F. Rendell & Sons	7,366 12 0
W. E. Chivers & Sons, Ltd.	7,460 0 0

Totals—

H. A. Smith	37,190 0 0
F. Rendell & Sons	34,348 2 6
W. E. Chivers & Sons, Ltd.	34,980 0 0

SOUTHEND-ON-SEA.—Supply of steelwork of conveniences in High-street, for the T.C. :—

*Somerville-Barnard Construction Co. £179 14

WESTMINSTER.—For repairs to the needleroom roof at the workhouses, 367, Fulham-road, S.W. Mr. E. T. Hall, architect, 54, Bedford-square, W.C.1 :—

*R. Haslam & Son, Woolwich.... £91 10

WITHERNSEA.—Erection of elementary school from the adaptation of Army huts, for the East Riding C.C. :—

*J. Taylor & Son .. At fixed profit basis of £300 above net cost of labour and materials.

YORKSHIRE.—The East Riding C.C. has arranged for the erection of houses for its employees at several places on the basis of the Council defraying cost of materials and labour at cost price, and the builders providing tackle and receiving a fixed profit, as follows :—

One policeman's house at Middleton-on-the-Wolds—
*G. T. Eastwood, Middleton..... £85 fixed profit
One policeman's house at Wetwang—
*G. T. Eastwood, Middleton .... £95 ,,
One policeman's house and one teacher's house, at Dunswell—
*A. E. Stephenson, Dunswell, £160 fixed profit the pair

London University Site.

Mr. Fisher, President of the Board of Education. states in a Parliamentary answer given to Sir W. Davison that the price which the Duke of Bedford and his trustees have agreed to accept for the London University site at the rear of the British Museum is £425,000.

War Memorials, Church Tablets, Celtic Crosses,
in Stone, Marble, or Granite. *Designs Free.*
MARBLE SHOPFITTINGS & STEPS.
KELLY & CO.
(Gramb Bros.) Ltd.
129, Marylebone Road, N.W.1
Phone: "Padd. 5518."

J. J. ETRIDGE, Jr. Ltd
SLATING AND TILING
SLATE MERCHANTS
CONTRACTORS.
Inspections and Reports made on
OLD OR FAULTY ROOFS
in any part of the country.
Telephone; Avenue 4940 (two lines), or write.
Bethnal Green Slate Works,
BETHNAL GREEN, LONDON, E.

JAPANESE OAK
FLOORING P. T. & G. FOR SECRET NAILING
SYDNEY PRIDAY
25, Monument Street, E.C.3
Telephone Nos.: AVENUE 667 & 4817

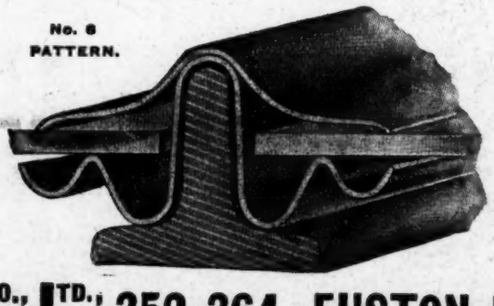
"SAVING UNDER CHLOROFORM."

THIS is a phrase which is often applied by economists to describe the co-operative movement. Most of the large firms in the building trade own and maintain their own motor transport, to this fact they rightly attribute a large measure of their success in business. On the other hand, there are quite a number of houses who believe in sub-contracting their haulage to outside concerns who specialise in transport. Those houses who hire are establishing other people in business at their own expense. The money that is being absorbed in hiring could be applied to purchasing vehicles, the result being that after a year or two the lorries have paid for themselves. All subsequent running is now for net profit.

1 Ton Motor Van or Lorry, £600. Two Pneumatic in front (Twins on rear), £55 extra.

MILES PER DAY	20	40	80
Interest on Capital at 7½ per cent.	3/–	3/–	3/–
Depreciation at 20 per cent.	8/–	8/–	8/–
Insurance at £22 per annum (comprehensive)	1/5	1/5	1/5
Rent	1/6	1/6	1/6
Tyres (5,000 miles)	4/5	8/9	17/7
Driver	10/–	10/–	10/–
Oil, grease, &c.	–/6	1/–	2/–
Petrol (10 m.p.g. at 4/– per gall.)	8/–	16/–	32/–
Repairs and Maintenance at 1½d. per mile	2/6	5/–	10/–
	39/4	54/8	85/6
20 miles per diem			39/4
40 ,, ,, ,,			54/8
80 ,, ,, ,,			85/6

To sum up the comprehensive net cost of running, *e.g.*, a 1-tonner for 40 miles, comes out at 54s. 8d. This speaks for itself. Having convinced the reader how vitally these statistics appeal to him in the conduct of his business, if he will give Messrs. Allan, Taylor & Co., of 126 and 128, High-street, Wandsworth, S.W.18, the opportunity, they will be glad to supply all requirements with the exact vehicle necessary for the work in hand, on a cash or credit basis. If advice is lacking, write to us, or ring Putney 1698.—[ADVT.]

BRABY'S "DROP-DRY" GLAZING
ECONOMICAL. EFFECTIVE.
ESTIMATES FREE.
ALSO No 8 PATTERN WITH WOOD CORE.
No. 8 PATTERN.

MANY THOUSANDS OF FEET FIXED TO ROOFS OF FACTORIES, WAREHOUSES, &c.
LOWEST PRICES.
F. BRABY & CO., LTD., 352-364, EUSTON RD., LONDON, N.W.1
Telegrams: "Courteous, Eusread, London." AND AT LIVERPOOL, BRISTOL, GLASGOW, FALKIRK, &c. Telephone No.: Museum 3082 (5 Lines)